

# SEQUENCE LISTING

<110> THE SALK INSTITUTE FOR BIOLOGICAL STUDIES  
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA  
LILJEGREN, Sarah, Jean  
ECKER, Joseph, R.  
YANOFSKY, Martin, F.

<120> GENETIC CONTROL OF ORGAN ABSCISSION

<130> SALKINS.035C1

<150> US 60/264,974

<151> 2001-01-29

<150> PCTUS02/01938

<151> 2002-01-22

<160> 21

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1452

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> CDS

<222> (1)...(1452)

<400> 1

atg aac gag aaa gcc aac gtc tct aag gag ctt aat gcc cgc cat aga	48
Met Asn Glu Lys Ala Asn Val Ser Lys Glu Leu Asn Ala Arg His Arg	
1 5 10 15	
aag att ctt gaa ggg ctt ctt aaa cat cca gag aac aga gaa tgt gct	96
Lys Ile Leu Glu Gly Leu Leu Lys His Pro Glu Asn Arg Glu Cys Ala	
20 25 30	
gac tgc aaa aca aaa ggt cca aga tgg gct agt gtt aat tta ggt atc	144
Asp Cys Lys Thr Lys Gly Pro Arg Trp Ala Ser Val Asn Leu Gly Ile	
35 40 45	
ttt atc tgc atg caa tgt tct ggg att cac agg agt ctc ggg gta cac	192
Phe Ile Cys Met Gln Cys Ser Gly Ile His Arg Ser Leu Gly Val His	
50 55 60	
ata tcg aag gtt cga tct gcc act ctg gac aca tgg ctc ccc gag cag	240
Ile Ser Lys Val Arg Ser Ala Thr Leu Asp Thr Trp Leu Pro Glu Gln	
65 70 75 80	
gtt gca ttt ata cag tca atg gga aat gat aaa gca aat agt tac tgg	288
Val Ala Phe Ile Gln Ser Met Gly Asn Asp Lys Ala Asn Ser Tyr Trp	
85 90 95	

gaa gca gag cta ccc cca aac tat gat aga gtt gga att gag aat ttt	336
Glu Ala Glu Leu Pro Pro Asn Tyr Asp Arg Val Gly Ile Glu Asn Phe	
100 105 110	
ata cgt gca aag tat gaa gag aag aga tgg gtt tct aga ggg gaa aag	384
Ile Arg Ala Lys Tyr Glu Glu Lys Arg Trp Val Ser Arg Gly Glu Lys	
115 120 125	
gct aga tca cct cct aga gtc gag cag gaa cgg cgg aaa tct gtg gag	432
Ala Arg Ser Pro Pro Arg Val Glu Gln Glu Arg Arg Lys Ser Val Glu	
130 135 140	
aga agt ggg ccg gga tat gag cat gga cat agt agt agt cct gta aat	480
Arg Ser Gly Pro Gly Tyr Glu His Gly His Ser Ser Ser Pro Val Asn	
145 150 155 160	
ttg ttt gag gag agg aaa act att cca gca tct aga aca aga aat aat	528
Leu Phe Glu Glu Arg Lys Thr Ile Pro Ala Ser Arg Thr Arg Asn Asn	
165 170 175	
gtt gct gca acg aga ata aat ctt ccc gtg cct ccc caa gga ccc agt	576
Val Ala Ala Thr Arg Ile Asn Leu Pro Val Pro Pro Gln Gly Pro Ser	
180 185 190	
cag gtt ata aag cca cag cag aaa atg gag tct gca gct act cca gta	624
Gln Val Ile Lys Pro Gln Gln Lys Met Glu Ser Ala Ala Thr Pro Val	
195 200 205	
gag agg gag aaa caa gca gta aat gtt gca cca gca tca gat cct cca	672
Glu Arg Glu Lys Gln Ala Val Asn Val Ala Pro Ala Ser Asp Pro Pro	
210 215 220	
aag gtg gat ttt gct act gat ctg ttt aac atg cta tca atg gat gat	720
Lys Val Asp Phe Ala Thr Asp Leu Phe Asn Met Leu Ser Met Asp Asp	
225 230 235 240	
tcg act aca aat acc tca gag gca act cct ggc gat act cct gcc gat	768
Ser Thr Thr Asn Thr Ser Glu Ala Thr Pro Gly Asp Thr Pro Ala Asp	
245 250 255	
gat aac tca tgg gct ggc ttt cag tct gct gga agt ggt caa acg gca	816
Asp Asn Ser Trp Ala Gly Phe Gln Ser Ala Gly Ser Gly Gln Thr Ala	
260 265 270	
gag aaa att gtc aca gcc aag cct gct gag agc agt tct cct cca gct	864
Glu Lys Ile Val Thr Ala Lys Pro Ala Glu Ser Ser Ser Pro Pro Ala	
275 280 285	
tca tct tct gac ttt gag gat ttg ttt aag gac aca cct aat tta aca	912
Ser Ser Ser Asp Phe Glu Asp Leu Phe Lys Asp Thr Pro Asn Leu Thr	
290 295 300	
act caa caa gca cca aaa gat gtg aaa ggc gat atc atg agc ctg ttt	960
Thr Gln Gln Ala Pro Lys Asp Val Lys Gly Asp Ile Met Ser Leu Phe	
305 310 315 320	

gag aag acg aat ata gta tcg cct ttt gcc atg cat cag caa cag gtt	1008
Glu Lys Thr Asn Ile Val Ser Pro Phe Ala Met His Gln Gln Gln Val	
325 330 335	
gct atg ctc gct cag cag caa gcc ctt tac atg gct gca gcg aaa gct	1056
Ala Met Leu Ala Gln Gln Gln Ala Leu Tyr Met Ala Ala Ala Lys Ala	
340 345 350	
gct gga ggc act cca aac ggc gtg aat caa caa gct att gct aat gct	1104
Ala Gly Gly Thr Pro Asn Gly Val Asn Gln Gln Ala Ile Ala Asn Ala	
355 360 365	
ctt aac gta gct tct gca aat tgg tca aac ccc ggc ggc tac cag atc	1152
Leu Asn Val Ala Ser Ala Asn Trp Ser Asn Pro Gly Gly Tyr Gln Ile	
370 375 380	
ccc gga atg act aac ccc gta ggt ggt caa gct gat ctc cag aaa ctt	1200
Pro Gly Met Thr Asn Pro Val Gly Gly Gln Ala Asp Leu Gln Lys Leu	
385 390 395 400	
atg caa aac atg aat atg aac gca aac atg aac acg aga ccc gca caa	1248
Met Gln Asn Met Asn Met Asn Ala Asn Met Asn Thr Arg Pro Ala Gln	
405 410 415	
ccg caa gag aac act cta caa tac cca tca tcc agt ttc tac aca atg	1296
Pro Gln Glu Asn Thr Leu Gln Tyr Pro Ser Ser Ser Phe Tyr Thr Met	
420 425 430	
ggt caa gct aat caa gtg aac ggt atg acc cca aac tca acc ggt aaa	1344
Gly Gln Ala Asn Gln Val Asn Gly Met Thr Pro Asn Ser Thr Gly Lys	
435 440 445	
cct cag tca tca tcc gca acc caa cca aca agc acc aca cca tct tca	1392
Pro Gln Ser Ser Ser Ala Thr Gln Pro Thr Ser Thr Thr Pro Ser Ser	
450 455 460	
caa tca ggc aaa gac ttt gat ttc tct tcc ttg atg gat gga atg ttc	1440
Gln Ser Gly Lys Asp Phe Asp Phe Ser Ser Leu Met Asp Gly Met Phe	
465 470 475 480	
aca aaa cat tga	1452
Thr Lys His *	

<210> 2

<211> 483

<212> PRT

<213> Arabidopsis thaliana

<400> 2

Met Asn Glu Lys Ala Asn Val Ser Lys Glu Leu Asn Ala Arg His Arg	
1 5 10 15	
Lys Ile Leu Glu Gly Leu Leu Lys His Pro Glu Asn Arg Glu Cys Ala	
20 25 30	
Asp Cys Lys Thr Lys Gly Pro Arg Trp Ala Ser Val Asn Leu Gly Ile	
35 40 45	

Phe	Ile	Cys	Met	Gln	Cys	Ser	Gly	Ile	His	Arg	Ser	Leu	Gly	Val	His
50						55					60				
Ile	Ser	Lys	Val	Arg	Ser	Ala	Thr	Leu	Asp	Thr	Trp	Leu	Pro	Glu	Gln
65					70				75						80
Val	Ala	Phe	Ile	Gln	Ser	Met	Gly	Asn	Asp	Lys	Ala	Asn	Ser	Tyr	Trp
				85					90					95	
Glu	Ala	Glu	Leu	Pro	Pro	Asn	Tyr	Asp	Arg	Val	Gly	Ile	Glu	Asn	Phe
			100					105					110		
Ile	Arg	Ala	Lys	Tyr	Glu	Glu	Lys	Arg	Trp	Val	Ser	Arg	Gly	Glu	Lys
			115				120					125			
Ala	Arg	Ser	Pro	Pro	Arg	Val	Glu	Gln	Glu	Arg	Arg	Lys	Ser	Val	Glu
						135					140				
Arg	Ser	Gly	Pro	Gly	Tyr	Glu	His	Gly	His	Ser	Ser	Ser	Pro	Val	Asn
145					150					155					160
Leu	Phe	Glu	Glu	Arg	Lys	Thr	Ile	Pro	Ala	Ser	Arg	Thr	Arg	Asn	Asn
				165					170					175	
Val	Ala	Ala	Thr	Arg	Ile	Asn	Leu	Pro	Val	Pro	Pro	Gln	Gly	Pro	Ser
			180					185					190		
Gln	Val	Ile	Lys	Pro	Gln	Gln	Lys	Met	Glu	Ser	Ala	Ala	Thr	Pro	Val
		195					200					205			
Glu	Arg	Glu	Lys	Gln	Ala	Val	Asn	Val	Ala	Pro	Ala	Ser	Asp	Pro	Pro
	210					215					220				
Lys	Val	Asp	Phe	Ala	Thr	Asp	Leu	Phe	Asn	Met	Leu	Ser	Met	Asp	Asp
225					230				235					240	
Ser	Thr	Thr	Asn	Thr	Ser	Glu	Ala	Thr	Pro	Gly	Asp	Thr	Pro	Ala	Asp
			245						250					255	
Asp	Asn	Ser	Trp	Ala	Gly	Phe	Gln	Ser	Ala	Gly	Ser	Gly	Gln	Thr	Ala
			260					265					270		
Glu	Lys	Ile	Val	Thr	Ala	Lys	Pro	Ala	Glu	Ser	Ser	Ser	Pro	Pro	Ala
		275					280					285			
Ser	Ser	Ser	Asp	Phe	Glu	Asp	Leu	Phe	Lys	Asp	Thr	Pro	Asn	Leu	Thr
	290					295				300					
Thr	Gln	Gln	Ala	Pro	Lys	Asp	Val	Lys	Gly	Asp	Ile	Met	Ser	Leu	Phe
305					310					315					320
Glu	Lys	Thr	Asn	Ile	Val	Ser	Pro	Phe	Ala	Met	His	Gln	Gln	Gln	Val
			325						330					335	
Ala	Met	Leu	Ala	Gln	Gln	Gln	Ala	Leu	Tyr	Met	Ala	Ala	Ala	Lys	Ala
			340					345					350		
Ala	Gly	Gly	Thr	Pro	Asn	Gly	Val	Asn	Gln	Gln	Ala	Ile	Ala	Asn	Ala
	355						360					365			
Leu	Asn	Val	Ala	Ser	Ala	Asn	Trp	Ser	Asn	Pro	Gly	Gly	Tyr	Gln	Ile
	370					375					380				
Pro	Gly	Met	Thr	Asn	Pro	Val	Gly	Gly	Gln	Ala	Asp	Leu	Gln	Lys	Leu
385					390					395					400
Met	Gln	Asn	Met	Asn	Met	Asn	Ala	Asn	Met	Asn	Thr	Arg	Pro	Ala	Gln
			405						410					415	
Pro	Gln	Glu	Asn	Thr	Leu	Gln	Tyr	Pro	Ser	Ser	Ser	Phe	Tyr	Thr	Met
			420					425					430		
Gly	Gln	Ala	Asn	Gln	Val	Asn	Gly	Met	Thr	Pro	Asn	Ser	Thr	Gly	Lys
		435					440					445			
Pro	Gln	Ser	Ser	Ser	Ala	Thr	Gln	Pro	Thr	Ser	Thr	Thr	Pro	Ser	Ser
	450					455					460				
Gln	Ser	Gly	Lys	Asp	Phe	Asp	Phe	Ser	Ser	Leu	Met	Asp	Gly	Met	Phe
465					470					475					480
Thr	Lys	His													

<210> 3  
 <211> 1452  
 <212> DNA  
 <213> *Arabidopsis thaliana*

<220>  
 <221> CDS  
 <222> (1) ... (1452)

<400> 3  
 atg aac gag aaa gcc aac gtc tct aag gag ctt aat gcc cgc cat aga 48  
 Met Asn Glu Lys Ala Asn Val Ser Lys Glu Leu Asn Ala Arg His Arg  
 1 5 10 15  
 aag att ctt gaa ggg ctt ctt aaa cat cca gag aac aga gaa tgt gct 96  
 Lys Ile Leu Glu Gly Leu Leu Lys His Pro Glu Asn Arg Glu Cys Ala  
 20 25 30  
 gac tgc aaa aca aaa ggt cca aga tgg gct agt gtt aat tta ggt atc 144  
 Asp Cys Lys Thr Lys Gly Pro Arg Trp Ala Ser Val Asn Leu Gly Ile  
 35 40 45  
 ttt atc tac atg caa tgt tct ggg att cac agg agt ctc ggg gta cac 192  
 Phe Ile Tyr Met Gln Cys Ser Gly Ile His Arg Ser Leu Gly Val His  
 50 55 60  
 ata tcg aag gtt cga tct gcc act ctg gac aca tgg ctc ccc gag cag 240  
 Ile Ser Lys Val Arg Ser Ala Thr Leu Asp Thr Trp Leu Pro Glu Gln  
 65 70 75 80  
 gtt gca ttt ata cag tca atg gga aat gat aaa gca aat agt tac tgg 288  
 Val Ala Phe Ile Gln Ser Met Gly Asn Asp Lys Ala Asn Ser Tyr Trp  
 85 90 95  
 gaa gca gag cta ccc cca aac tat gat aga gtt gga att gag aat ttt 336  
 Glu Ala Glu Leu Pro Pro Asn Tyr Asp Arg Val Gly Ile Glu Asn Phe  
 100 105 110  
 ata cgt gca aag tat gaa gag aag aga tgg gtt tct aga ggg gaa aag 384  
 Ile Arg Ala Lys Tyr Glu Glu Lys Arg Trp Val Ser Arg Gly Glu Lys  
 115 120 125  
 gct aga tca cct cct aga gtc gag cag gaa cgg cgg aaa tct gtg gag 432  
 Ala Arg Ser Pro Pro Arg Val Glu Gln Glu Arg Arg Lys Ser Val Glu  
 130 135 140  
 aga agt ggg ccg gga tat gag cat gga cat agt agt agt cct gta aat 480  
 Arg Ser Gly Pro Gly Tyr Glu His Gly His Ser Ser Ser Pro Val Asn  
 145 150 155 160  
 ttg ttt gag gag agg aaa act att cca gca tct aga aca aga aat aat 528  
 Leu Phe Glu Glu Arg Lys Thr Ile Pro Ala Ser Arg Thr Arg Asn Asn  
 165 170 175  
 gtt gct gca acg aga ata aat ctt ccc gtg cct ccc caa gga ccc agt 576  
 Val Ala Ala Thr Arg Ile Asn Leu Pro Val Pro Pro Gln Gly Pro Ser

180										185										190										
cag gtt ata aag cca cag cag aaa atg gag tct gca gct act cca gta	624																													
Gln Val Ile Lys Pro Gln Gln Lys Met Glu Ser Ala Ala Thr Pro Val																														
195	200	205																												
gag agg gag aaa caa gca gta aat gtt gca cca gca tca gat cct cca	672																													
Glu Arg Glu Lys Gln Ala Val Asn Val Ala Pro Ala Ser Asp Pro Pro																														
210	215	220																												
aag gtg gat ttt gct act gat ctg ttt aac atg cta tca atg gat gat	720																													
Lys Val Asp Phe Ala Thr Asp Leu Phe Asn Met Leu Ser Met Asp Asp																														
225	230	235	240																											
tcg act aca aat acc tca gag gca act cct ggc gat act cct gcc gat	768																													
Ser Thr Thr Asn Thr Ser Glu Ala Thr Pro Gly Asp Thr Pro Ala Asp																														
245	250	255																												
gat aac tca tgg gct ggc ttt cag tct gct gga agt ggt caa acg gca	816																													
Asp Asn Ser Trp Ala Gly Phe Gln Ser Ala Gly Ser Gly Gln Thr Ala																														
260	265	270																												
gag aaa att gtc aca gcc aag cct gct gag agc agt tct cct cca gct	864																													
Glu Lys Ile Val Thr Ala Lys Pro Ala Glu Ser Ser Ser Pro Pro Ala																														
275	280	285																												
tca tct tct gac ttt gag gat ttg ttt aag gac aca cct aat tta aca	912																													
Ser Ser Ser Asp Phe Glu Asp Leu Phe Lys Asp Thr Pro Asn Leu Thr																														
290	295	300																												
act caa caa gca cca aaa gat gtg aaa ggc gat atc atg agc ctg ttt	960																													
Thr Gln Gln Ala Pro Lys Asp Val Lys Gly Asp Ile Met Ser Leu Phe																														
305	310	315	320																											
gag aag acg aat ata gta tcg cct ttt gcc atg cat cag caa cag gtt	1008																													
Glu Lys Thr Asn Ile Val Ser Pro Phe Ala Met His Gln Gln Gln Val																														
325	330	335																												
gct atg ctc gct cag cag caa gcc ctt tac atg gct gca gcg aaa gct	1056																													
Ala Met Leu Ala Gln Gln Gln Ala Leu Tyr Met Ala Ala Ala Lys Ala																														
340	345	350																												
gct gga ggc act cca aac ggc gtg aat caa caa gct att gct aat gct	1104																													
Ala Gly Gly Thr Pro Asn Gly Val Asn Gln Gln Ala Ile Ala Asn Ala																														
355	360	365																												
ctt aac gta gct tct gca aat tgg tca aac ccc ggc ggc tac cag atc	1152																													
Leu Asn Val Ala Ser Ala Asn Trp Ser Asn Pro Gly Gly Tyr Gln Ile																														
370	375	380																												
ccc gga atg act aac ccc gta ggt ggt caa gct gat ctc cag aaa ctt	1200																													
Pro Gly Met Thr Asn Pro Val Gly Gly Gln Ala Asp Leu Gln Lys Leu																														
385	390	395	400																											
atg caa aac atg aat atg aac gca aac atg aac acg aga ccc gca caa	1248																													
Met Gln Asn Met Asn Met Asn Ala Asn Met Asn Thr Arg Pro Ala Gln																														
405	410	415																												

ccg	caa	gag	aac	act	cta	caa	tac	cca	tca	tcc	agt	ttc	tac	aca	atg	1296
Pro	Gln	Glu	Asn	Thr	Leu	Gln	Tyr	Pro	Ser	Ser	Ser	Phe	Tyr	Thr	Met	
			420					425					430			
ggg	caa	gct	aat	caa	gtg	aac	ggg	atg	acc	cca	aac	tca	acc	ggg	aaa	1344
Gly	Gln	Ala	Asn	Gln	Val	Asn	Gly	Met	Thr	Pro	Asn	Ser	Thr	Gly	Lys	
		435					440					445				
cct	cag	tca	tca	tcc	gca	acc	caa	cca	aca	agc	acc	aca	cca	tct	tca	1392
Pro	Gln	Ser	Ser	Ser	Ala	Thr	Gln	Pro	Thr	Ser	Thr	Thr	Pro	Ser	Ser	
		450				455					460					
caa	tca	ggc	aaa	gac	ttt	gat	ttc	tct	tcc	ttg	atg	gat	gga	atg	ttc	1440
Gln	Ser	Gly	Lys	Asp	Phe	Asp	Phe	Ser	Ser	Leu	Met	Asp	Gly	Met	Phe	
465					470					475					480	
aca	aaa	cat	tga													1452
Thr	Lys	His	*													

<210> 4  
 <211> 483  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 4

Met	Asn	Glu	Lys	Ala	Asn	Val	Ser	Lys	Glu	Leu	Asn	Ala	Arg	His	Arg	
1				5					10					15		
Lys	Ile	Leu	Glu	Gly	Leu	Leu	Lys	His	Pro	Glu	Asn	Arg	Glu	Cys	Ala	
			20					25					30			
Asp	Cys	Lys	Thr	Lys	Gly	Pro	Arg	Trp	Ala	Ser	Val	Asn	Leu	Gly	Ile	
		35					40					45				
Phe	Ile	Tyr	Met	Gln	Cys	Ser	Gly	Ile	His	Arg	Ser	Leu	Gly	Val	His	
	50					55					60					
Ile	Ser	Lys	Val	Arg	Ser	Ala	Thr	Leu	Asp	Thr	Trp	Leu	Pro	Glu	Gln	
65				70					75					80		
Val	Ala	Phe	Ile	Gln	Ser	Met	Gly	Asn	Asp	Lys	Ala	Asn	Ser	Tyr	Trp	
			85					90						95		
Glu	Ala	Glu	Leu	Pro	Pro	Asn	Tyr	Asp	Arg	Val	Gly	Ile	Glu	Asn	Phe	
			100					105					110			
Ile	Arg	Ala	Lys	Tyr	Glu	Glu	Lys	Arg	Trp	Val	Ser	Arg	Gly	Glu	Lys	
	115						120					125				
Ala	Arg	Ser	Pro	Pro	Arg	Val	Glu	Gln	Glu	Arg	Arg	Lys	Ser	Val	Glu	
	130					135					140					
Arg	Ser	Gly	Pro	Gly	Tyr	Glu	His	Gly	His	Ser	Ser	Ser	Pro	Val	Asn	
145					150					155					160	
Leu	Phe	Glu	Glu	Arg	Lys	Thr	Ile	Pro	Ala	Ser	Arg	Thr	Arg	Asn	Asn	
				165				170						175		
Val	Ala	Ala	Thr	Arg	Ile	Asn	Leu	Pro	Val	Pro	Pro	Gln	Gly	Pro	Ser	
			180					185					190			
Gln	Val	Ile	Lys	Pro	Gln	Gln	Lys	Met	Glu	Ser	Ala	Ala	Thr	Pro	Val	
	195						200					205				
Glu	Arg	Glu	Lys	Gln	Ala	Val	Asn	Val	Ala	Pro	Ala	Ser	Asp	Pro	Pro	
	210					215					220					
Lys	Val	Asp	Phe	Ala	Thr	Asp	Leu	Phe	Asn	Met	Leu	Ser	Met	Asp	Asp	

225					230					235				240	
Ser	Thr	Thr	Asn	Thr	Ser	Glu	Ala	Thr	Pro	Gly	Asp	Thr	Pro	Ala	Asp
				245					250					255	
Asp	Asn	Ser	Trp	Ala	Gly	Phe	Gln	Ser	Ala	Gly	Ser	Gly	Gln	Thr	Ala
			260					265					270		
Glu	Lys	Ile	Val	Thr	Ala	Lys	Pro	Ala	Glu	Ser	Ser	Ser	Pro	Pro	Ala
		275					280					285			
Ser	Ser	Ser	Asp	Phe	Glu	Asp	Leu	Phe	Lys	Asp	Thr	Pro	Asn	Leu	Thr
	290					295					300				
Thr	Gln	Gln	Ala	Pro	Lys	Asp	Val	Lys	Gly	Asp	Ile	Met	Ser	Leu	Phe
305					310					315					320
Glu	Lys	Thr	Asn	Ile	Val	Ser	Pro	Phe	Ala	Met	His	Gln	Gln	Gln	Val
			325						330					335	
Ala	Met	Leu	Ala	Gln	Gln	Gln	Ala	Leu	Tyr	Met	Ala	Ala	Ala	Lys	Ala
			340					345					350		
Ala	Gly	Gly	Thr	Pro	Asn	Gly	Val	Asn	Gln	Gln	Ala	Ile	Ala	Asn	Ala
	355					360					365				
Leu	Asn	Val	Ala	Ser	Ala	Asn	Trp	Ser	Asn	Pro	Gly	Gly	Tyr	Gln	Ile
	370					375				380					
Pro	Gly	Met	Thr	Asn	Pro	Val	Gly	Gly	Gln	Ala	Asp	Leu	Gln	Lys	Leu
385				390					395						400
Met	Gln	Asn	Met	Asn	Met	Asn	Ala	Asn	Met	Asn	Thr	Arg	Pro	Ala	Gln
			405					410						415	
Pro	Gln	Glu	Asn	Thr	Leu	Gln	Tyr	Pro	Ser	Ser	Ser	Phe	Tyr	Thr	Met
		420						425					430		
Gly	Gln	Ala	Asn	Gln	Val	Asn	Gly	Met	Thr	Pro	Asn	Ser	Thr	Gly	Lys
	435					440					445				
Pro	Gln	Ser	Ser	Ser	Ala	Thr	Gln	Pro	Thr	Ser	Thr	Thr	Pro	Ser	Ser
	450				455				460						
Gln	Ser	Gly	Lys	Asp	Phe	Asp	Phe	Ser	Ser	Leu	Met	Asp	Gly	Met	Phe
465				470				475						480	
Thr	Lys	His													

<210> 5  
 <211> 1452  
 <212> DNA  
 <213> Arabidopsis thaliana

<220>  
 <221> CDS  
 <222> (1)...(594)

<400> 5	
atg aac gag aaa gcc aac gtc tct aag gag ctt aat gcc cgc cat aga	48
Met Asn Glu Lys Ala Asn Val Ser Lys Glu Leu Asn Ala Arg His Arg	
1 5 10 15	
aag att ctt gaa ggg ctt ctt aaa cat cca gag aac aga gaa tgt gct	96
Lys Ile Leu Glu Gly Leu Leu Lys His Pro Glu Asn Arg Glu Cys Ala	
20 25 30	
gac tgc aaa aca aaa ggt cca aga tgg gct agt gtt aat tta ggt atc	144
Asp Cys Lys Thr Lys Gly Pro Arg Trp Ala Ser Val Asn Leu Gly Ile	
35 40 45	



ttt atc tgc atg caa tgt tct ggg att cac agg agt ctc ggg gta cac	192
Phe Ile Cys Met Gln Cys Ser Gly Ile His Arg Ser Leu Gly Val His	
50 55 60	
ata tcg aag gtt cga tct gcc act ctg gac aca tgg ctc ccc gag cag	240
Ile Ser Lys Val Arg Ser Ala Thr Leu Asp Thr Trp Leu Pro Glu Gln	
65 70 75 80	
gtt gca ttt ata cag tca atg gga aat gat aaa gca aat agt tac tgg	288
Val Ala Phe Ile Gln Ser Met Gly Asn Asp Lys Ala Asn Ser Tyr Trp	
85 90 95	
gaa gca gag cta ccc cca aac tat gat aga gtt gga att gag aat ttt	336
Glu Ala Glu Leu Pro Pro Asn Tyr Asp Arg Val Gly Ile Glu Asn Phe	
100 105 110	
ata cgt gca aag tat gaa gag aag aga tgg gtt tct aga ggg gaa aag	384
Ile Arg Ala Lys Tyr Glu Glu Lys Arg Trp Val Ser Arg Gly Glu Lys	
115 120 125	
gct aga tca cct cct aga gtc gag cag gaa cgg cgg aaa tct gtg gag	432
Ala Arg Ser Pro Pro Arg Val Glu Gln Glu Arg Arg Lys Ser Val Glu	
130 135 140	
aga agt ggg ccg gga tat gag cat gga cat agt agt agt cct gta aat	480
Arg Ser Gly Pro Gly Tyr Glu His Gly His Ser Ser Ser Pro Val Asn	
145 150 155 160	
ttg ttt gag gag agg aaa act att cca gca tct aga aca aga aat aat	528
Leu Phe Glu Glu Arg Lys Thr Ile Pro Ala Ser Arg Thr Arg Asn Asn	
165 170 175	
gtt gct gca acg aga ata aat ctt ccc gtg cct ccc caa gga ccc agt	576
Val Ala Ala Thr Arg Ile Asn Leu Pro Val Pro Pro Gln Gly Pro Ser	
180 185 190	
cag gtt ata aag cca tag cagaaaatgg agtctgcagc tactccagta	624
Gln Val Ile Lys Pro *	
195	
gagagggaga aacaagcagt aaatgttgca ccagcatcag atcctccaaa ggtggatttt	684
gctactgac tgtttaacat gctatcaatg gatgattcga ctacaaatac ctcagaggca	744
actcctggcg atactcctgc cgatgataac tcatgggctg gctttcagtc tgctggaagt	804
ggtcaaacgg cagagaaaaat tgtcacagcc aagcctgctg agagcagttc tctccagct	864
tcatcttctg actttgagga tttgtttaag gacacaccta atttaacaac tcaacaagca	924
ccaaaagatg tgaaaggcga tatcatgagc ctggttgaga agacgaatat agtatcgct	984
tttgccatgc atcagcaaca ggttgctatg ctgcctcagc agcaagccct ttacatggct	1044
gcagcgaaag ctgctggagg cactccaaac ggcgtgaatc aacaagctat tgctaattgct	1104
cttaacgtag cttctgcaaa ttgggtcaaac cccggcggct accagatccc cggaatgact	1164
aaccccgtag gtggtcaagc tgatctccag aaacttatgc aaaacatgaa tatgaacgca	1224
aacatgaaca cgagaccgc acaaccgcaa gagaacactc tacaataccc atcatccagt	1284
ttctacacaa tgggtcaagc taatcaagtg aacgggtatga ccccaaactc aaccggtaaa	1344
cctcagtcac catccgcaac ccaaccaaca agcaccacac catcttcaca atcaggcaaa	1404
gactttgatt tctcttcctt gatggatgga atgttcacaa aacattga	1452

<210> 6

<211> 197

<212> PRT

<213> Arabidopsis thaliana

<400> 6

```
Met Asn Glu Lys Ala Asn Val Ser Lys Glu Leu Asn Ala Arg His Arg
 1          5          10          15
Lys Ile Leu Glu Gly Leu Leu Lys His Pro Glu Asn Arg Glu Cys Ala
 20          25          30
Asp Cys Lys Thr Lys Gly Pro Arg Trp Ala Ser Val Asn Leu Gly Ile
 35          40          45
Phe Ile Cys Met Gln Cys Ser Gly Ile His Arg Ser Leu Gly Val His
 50          55          60
Ile Ser Lys Val Arg Ser Ala Thr Leu Asp Thr Trp Leu Pro Glu Gln
 65          70          75          80
Val Ala Phe Ile Gln Ser Met Gly Asn Asp Lys Ala Asn Ser Tyr Trp
 85          90          95
Glu Ala Glu Leu Pro Pro Asn Tyr Asp Arg Val Gly Ile Glu Asn Phe
100          105          110
Ile Arg Ala Lys Tyr Glu Glu Lys Arg Trp Val Ser Arg Gly Glu Lys
115          120          125
Ala Arg Ser Pro Pro Arg Val Glu Gln Glu Arg Arg Lys Ser Val Glu
130          135          140
Arg Ser Gly Pro Gly Tyr Glu His Gly His Ser Ser Ser Pro Val Asn
145          150          155          160
Leu Phe Glu Glu Arg Lys Thr Ile Pro Ala Ser Arg Thr Arg Asn Asn
165          170          175
Val Ala Ala Thr Arg Ile Asn Leu Pro Val Pro Pro Gln Gly Pro Ser
180          185          190
Gln Val Ile Lys Pro
195
```

<210> 7

<211> 1739

<212> DNA

<213> Arabidopsis thaliana

<400> 7

```
ttgataagaa gtgttttagg ggaaagcgag gctgcaagag aatcaaataa gaaagagtaa 60
acaaaacaaa accctagttg ttgagatggt cacataaata accaccaaga tccgatacaa 120
tcttaattgg atatcatttt aattaaccac gttcaaacct tattatatga agtttgtttc 180
ttcgaatata ttttccatat acttgattta attataaata cttatttaca taacaataca 240
tactccagaa tcaatattct caaatTTtag aaaaacaatg tgagatgtac atgattgaga 300
taaagcttga agctaagtct gattaagaag aaattaaagt ttgcaaaatg tggggaagtc 360
tctatacggtg tcagagggtt tgagatctga gaataactga agagaggcta tggagagtaa 420
ttcgagaagc aaaaataagc agtcgtctat ttactatatg agaaaaatct tccttctaga 480
tgtgcaaata tcctcctgaa aagttgggtc tcgcactgat aacaaagaga gatggctatg 540
atgatcatat atttccaagc tcattccatc ataatcgaga cgtcacatcc cctaaaaagc 600
atattaattg ccaaagttgg tagcataact ctcttctaata ggcgacttaa aatggaaata 660
tactaagtgg atctatatat tttcaaaatt ggaaagtata tatatgtgga tgaagttaga 720
gaagttagaa atttcaaaag gctttgggat tatatttgtg ataactcccg atgatattcc 780
acatacagat aagtaaaggt gctacttaga ccaaaccgat tatgagggtt agagccagcg 840
agagaccact tctcattaga ctacaaaact ttttttaggtt tattcacaca caatgtatta 900
tagttcctaa tgtataccta ttaattaga gtttgcgaa tgtaggatt atagttccta 960
ttgacaaaca aatatcagtt tgaaaaatta ggaatctaag agataataat ataattattt 1020
ttttgggttt aaattgaaat ttgtgttggg ttggaacattc gttgactcat cgtcacatca 1080
aataaaaatc ttagcaaata aaatatgtcc cataaacatc acataaataa acaaagaaat 1140
```

tggaatcaat	acaacaacca	ctccaaagt	gatacagaca	taacaggtga	tgagatggcc	1200
atgtgattta	ttttccaccc	gcaacactct	aatgcttata	tatgaccaat	caaaaaaac	1260
acttaaaccg	ccaaataaac	cgaccttatt	tttgataaat	caaaacccac	ttagtcacaa	1320
attaaccaat	tttatatgat	tacactttca	caaataattca	tgtgtagatt	tctttgaaaa	1380
ttttcaggtg	ctgcaatcac	gagtgaaccga	attatTTTTTg	aaaattttaaa	ccgaaatgaa	1440
attaaaccga	accatattca	atTTTtgaaaa	tgaaatctaa	aaccggatta	ataaaccagt	1500
accataatct	gaacgggtcca	aaaagtattg	acccatctct	ctctcttggg	cgctcgttct	1560
caaagggcaa	agaaaaaagg	atttttaatt	ttcggagagg	aagaagaaga	gagagatatt	1620
gaagagcgct	gaaggcgga	aagactatTT	tgacctcgtc	gtctccgtag	atcatttttc	1680
ttcagctctt	cttcttcttc	tttctccgat	tctcttctt	ttgattttat	ctatccgcc	1739

<210> 8

<211> 5580

<212> DNA

<213> Arabidopsis thaliana

<400> 8

cagaaaaagt	ctctctctct	tgatcaatgt	tttgtgaaca	ttccatccat	caaggaagag	60
aaatcaaagt	ctttgcctga	ttgtgaagat	ggtgtggtgc	ttgttggttg	ggttgcggt	120
gatgactgag	gtttaccggt	tgagtttggg	gtcataccgt	tcacttgatt	agcttgaccc	180
attgtgtaga	aactgcatta	ttaataacaa	ccaaagatca	tatgagagtt	agttagggtta	240
agcacttttg	ataacgttat	gatgttttca	gaagaaacaa	acaagatgca	gttttgtgtg	300
catacctgga	tgatgggtat	tgtagagtgt	tctcttgccg	ttgtgcgggt	ctcgtgttca	360
tgtttgcggt	catattcatg	ttctaaaatt	atggcgatgt	aacagagagc	aagaattagt	420
gagaattttg	caagaacttt	ggtcaatggt	aatattgatc	ttgcttaaaa	aaagttaaagg	480
ggagatctta	cttgcataag	tttctggaga	tcagcttgac	cacctacggg	gttagtcatt	540
ccggggatct	ggttagccgc	ggggtttgac	caatttgcag	aagctacgtt	aagagcatta	600
gcaatagctt	ggtgattcac	gccgtttgga	gtgcctccag	cagctttcgc	tcgagccatg	660
taaagggctt	gctgctgagc	gagcatagca	acctgttgct	gatgcatggc	aaaaggcgat	720
actatatctg	tctgtaatca	aatagaacac	acagagttat	atcacttgaa	tctgctctgg	780
tgttccaaat	gtcccggtgt	gaagaaatca	tagtaagtga	taacaaaaca	caaatacat	840
cattcgctat	atttgtaaat	gtaagttaaa	taatgatata	aaaacgaaac	ttggaaagct	900
gaatatcaac	aaagcagtga	aatctgagaa	gcgtatataa	ttaactaata	atttaccttc	960
tcaaacaggc	tcatgatata	gcctttcaca	tcttttggtg	cttggtgagt	tgttaaatta	1020
ggtgtgtcct	taaacaaatc	ctcaaagtca	gaagatgaag	ctggaggaga	actgctctca	1080
gcaggcttgg	ctgtgacaat	tttctctgcc	gtttgaccac	ttccagcagc	tacagtttta	1140
ggattcagaa	attaatctat	tactccaaag	cattttcaaa	agaagaacaa	ttgacataaa	1200
gttaacaagg	ataggaaaaa	tgtgccacga	tgtagatta	tcacatgcta	gatagataca	1260
tacactgaaa	gccagcccat	gagttatcat	cggcaggagt	atcgccagga	gttgcctctg	1320
aggtattttg	agtogaatca	tccattgata	gcatgtttaa	cagatcagta	gcaaaatcca	1380
cctttggagg	atctgatgct	ggtgcaacat	ttactgcttg	tttctccctc	tctactggag	1440
tagctgcaga	ctccattttc	tgctgtggct	ttataacctg	tcattttttag	catcatgtat	1500
cagaaaaacc	agggtttggg	tactgtaaga	aagacacggt	gacagattat	gaggctctaa	1560
aaacacagtg	agtaaaataa	tgatctgaca	gctacagcat	atgcattgac	aaaaataatg	1620
atctcatagc	tgatatccta	agattattaa	ataagatcaa	ggaatacggg	tccttaatac	1680
tgatgagtaa	ctaaagggtat	ggctcttttag	ttatacagat	cttctgagaa	gtatgttttg	1740
tacctgactg	ggtccttggg	gaggcaagg	aagattttatt	ctcgttgcag	caacattatt	1800
tcttgttcta	gatgctggaa	tagttttcct	ctcctcaaac	aaattttacag	gactactact	1860
atgtccatgc	tcatatcccg	gccacttct	ctccacagat	ttccgccggt	cctgctcgac	1920
tctaggagggt	gatctagcct	ttccctctct	agaaacccat	ctcttctctt	catacctaga	1980
aaagtcatat	gtcataagaa	tgattttcaac	gtccatatga	atagcaagat	agacaattca	2040
atgaggtgga	actaactgaa	aagttttgtat	aatgaaaaag	agagatacat	actttgcacg	2100
tataaaattc	tcaattccaa	ctctatcata	gtttgggggt	agctctgctt	cccagtaact	2160
atttgcttta	tcattttccca	ttgctgcatg	caaataaaaag	attatatact	ttacattgcg	2220
taacaaccca	tgaatcagcc	atagagcatt	tagtttaaaa	gacacttaca	ctgtataaat	2280
gcaacctgct	cggggagcca	tgtgtccaga	gtggcagatc	gaacctgcac	tcatttagccc	2340
agtcagggtg	tttggtagaa	aataaagtag	cttatgctgc	taagggttaac	atctacttga	2400

caaaaggaca	cggctcatatc	aaaaatcaga	gggcgaaatc	aatcatgta	cttttgcaca	2460
gagttgcttg	aagttcgtgt	gtaaactgta	tcgacgacaa	tgggagtaca	agaagggtggg	2520
gagattttaat	gcattcatgt	caaactttcc	agctcttgtg	atggaaaata	caaatgaaa	2580
ttgctaatac	aaaaaccaa	ttgaaaat	gtgcagagaa	tttgagccaa	atggaatgag	2640
ttattcatcg	aattaatatc	tgagctttcg	taaaaaatg	cagcatcaag	aaaacaaatg	2700
tagaaaggaa	agttagagac	taccttcgat	atgtgtaccc	cgagactcct	gtgaatccca	2760
gaacattgca	tgcagataaa	gatacctaaa	ttaacactag	cccatcttgg	acctctgcaa	2820
agcaaagtga	acagtattag	caaatacata	catgaaccag	cataataatg	ctgaaaattc	2880
acatcaggta	gaaaactata	ctttgttttg	cagtcagcac	attctctgtt	ctctggatgt	2940
ttaagaagcc	cttcaagaat	ctgcagataa	gtagcaccaa	aatcaaata	atattcaagc	3000
aatagactac	ataaacgaaa	aaatcatatc	tcgcaaaaca	taaagaagaa	tctacacata	3060
caaaatatag	agtatctcaa	gaaaacttca	aaattatcag	aattgacatg	tttaactaac	3120
caaatgaat	caaagttctc	attgcagtat	gagataagtt	tcgtcaatga	atgaacacca	3180
aagttctcga	agactcgaca	tacaacatca	ttcctaatat	cctatacatg	tatgcatcac	3240
caatcccaca	aagctatccc	aactacaact	aatagtttca	acatggcaaa	taactcaaag	3300
actaccaagc	acaaatgaaa	atccctatgg	gacgctaagc	tccttggatc	cctgtgttcg	3360
attctttcca	aatcaaaca	attgaatacg	aatttctata	ggaaaacact	agaattcaag	3420
ctccatgaaa	ctgtaacatt	caataagccg	acgttgaata	taaaacaatt	caaaaacccg	3480
atcgtgatca	actattgtcc	tagacaacaa	atcgaaatag	agaaactgat	tttcattgct	3540
gatgaataat	aattctagct	caatcgatcg	aagaagataa	ggatcgacga	tacaaatcct	3600
ctcctaacta	gaggaaaccg	aagaaaatga	aggaaggata	gctgctaata	cacagatcca	3660
atcgaattaa	gatcgatcat	atattgtttg	caaccaaatt	caaataatg	acgacaaatc	3720
cacaaagctc	ggagaaaata	aaataagaga	atctgagatt	cgagattaga	gagagacctt	3780
tctatggcgg	gcattaagct	ccttagagac	gttggctttc	tcgttcattg	cggatagata	3840
aaatcaaaag	aaggagaatc	ggagaaagag	gaagaagaag	agctgaagaa	aaatgatcta	3900
cggagcgcac	gaggtcaaaa	tagtcttttc	cgccttcagc	gctcttcaat	atctctctct	3960
ctctcttcc	ctccgaaaat	taaaaatcct	tttttctttg	ccctttgaga	acgagcgacc	4020
aagagagaga	gatgggtcaa	tacttttttg	accgttcaga	ttatgggtact	ggttttattaa	4080
tccggtttta	gatttcattt	tcaaaattga	atatgggttcg	gtttaatttc	atttcggttt	4140
aaattttcaa	aaataattcg	gtcactcgtg	attgcagcac	ctgaaaattt	tcaaagaaat	4200
ctacacatga	atatttgtga	aagtgtaatc	atataaaatt	ggttaatttg	tgactaagtg	4260
ggttttgatt	tatcaaaaat	aaggctcgggt	tatttggcgg	tttaagtgg	ttttttgatt	4320
ggtcataat	aagcattaga	gtgttgcggg	tggaaaataa	atcacatggc	catctcatca	4380
cctgttatgt	ctgtatccac	tttggagtgg	ttgttgtatt	gattccaatt	tctttgttta	4440
tttatgtgat	gtttatggga	catattttat	ttgctaagat	ttttatttga	tgtgacgatg	4500
agtcaacgaa	tgttccaacc	aacacaaaat	tcaattttaa	ccccaaaaa	taatttatatt	4560
attatctctt	agatttcctaa	tttttcaaac	tgatatttgt	ttgtcaatac	gaactataat	4620
cctaacattc	gacaaactct	aatttaatat	gtatacatta	ggaactataa	tacatttgtgt	4680
gtgaataaac	ctaaaaaagt	tttgtagtct	aatgagaagt	ggtctctcgc	tggctctaaa	4740
cctcataatc	ggtttgggtc	aagtagcacc	tttacttata	tgtatgtgga	atatcatcgg	4800
gagttatcac	aaatataatc	ccaaagcctt	ttgaaatttc	taacttctct	aacttcatcc	4860
acatatatat	actttccaat	tttgaaaata	tatagatcca	cttagtatat	ttccatttta	4920
agtcgccatt	agaagagagt	tatgctacca	actttggcaa	ttaatatgct	ttttagggga	4980
tgtgacgtcg	cgattatgat	gggatgagct	tggaaatata	tgatcatcat	agccatctct	5040
ctttgttata	agtgcgagga	ccaacttttc	aggaggatat	ttgcacatct	agaaggaaga	5100
tttttctcat	atagtaaata	gacgactgct	tatttttgc	tctcgaatta	ctctccatag	5160
cctctcttca	agtattctca	gatctcaaac	cctctgacac	gtatagagac	ttccccacat	5220
tttgcaaact	ttaatttctt	cttaatcaga	cttagcttca	agctttatct	caatcatgta	5280
catctcacat	tgtttttcta	aaatttgagg	atattgattc	tggagtatgt	attgttatgt	5340
aaataagtat	ttataattaa	atcaagtata	tggaaaatat	attcgaagaa	acaaacttca	5400
tataataagg	tttgaacgtg	gttaattaaa	atgatatacca	attaagattg	tatcggatct	5460
tgggtggttat	ttatgtgaac	atctcaacaa	ctagggtttt	gttttgttta	ctctttctta	5520
tttgattctc	ttgcagcctc	gctttccctt	aaaacacttc	ttatcaatgg	cgtcgtctct	5580

<210> 9

<211> 2160

<212> DNA

<213> Arabidopsis thaliana

<400> 9

```
tctgcaacca attcaaaggt cgacaacttc ctgaaaggat ccattttaaaa ctcaaataag 60
taacaacatc tcaaccatgt gaaagtgtaa tgatgcttca attgttcttt taccattatg 120
acgattttga atgtaactcg tatataaaga tcttagatat gaaagggctc tgattgatga 180
ttgtcaaaac agtttaaaac cgcagactta cgtggggtaa gaacacaaaa atagattttt 240
gctgtaaccc tttaggctca gacgagagaa gatgctaacc tgagctgagg aaaatgaagg 300
taaaggaggg gtttttggtg attcgccgat tgtgacgccg gtgataaggag cgatttagcac 360
cgagaaggga tgaaaaaacg attctttcaa ttgggttatc gaaggaaatct tcgtatgagc 420
atagtgatca agtcgggttt tcgagagcta gggatttgaa tttattgctt tgctttgact 480
ccatgttgga ttaaaaaatag agagatgatg tgtcgcagtg acagatataa aagggtacga 540
gaaaccgtca tttcttttct ctctctctct tcaaatccgt tcttccttga aaccattttg 600
gctctctgtt tacaaacttg gtttgatttt tcaattgcct ctgtttctct ctcatctctc 660
gattcatctt catcagaatg aacaggaagg cctctgtttc caaggagctc aacgccaagc 720
attcaaaggt cccatctttt tttctctctc ttttcgattt ttcaccattg gttttgcgtc 780
tggaaggttg aaaggttaga gattttgtgt ggggtataga tattggaagc acttttgaag 840
catccagaca atcgagaatg tgcagattgt agatcaaagt aagcatcttg ataacattat 900
ctctttcatg atcatgtaag aaaaacgatt taggagcatt gtgttgtttg gatctatcta 960
ttttacaggg caccaagatg ggcaagtgtg aaccttgagg tattcatttg tatgcaatgt 1020
tctggaatcc atcgtagcct tggcgtccac atctctcagg tccctaaata atctctcttt 1080
taattgattg tgttgtaaat ggatcataca aattagggat actgatgaat tttggacaca 1140
ggtaagggtc ataactctgg atacatggct tccagatcag gttgctttca tgaaatgtaa 1200
gctcctcttt tgtatataat gaacacattc agtagttgaa tttgtatca atcccatagc 1260
ttgatcatct tattctcggg ctagctaccg gtaatgctaa gggaaatgag tattgggaat 1320
cagaattgcc tcaacatttc gagagaagtt caagcgacac gtttataaga gccaaagtatt 1380
gattcttttc tatgttcgct tttgcttctc catctgctac aacacaactt tagcttgaat 1440
ctttttttct tctgttcgtg tgtgttttag atacagttag aagagatggg tttcaccggg 1500
agcgattcaa ccggtctcta tagttagcca gctaagctgc aaagttagtc acttggtaga 1560
gagtggatat aaacctgaaa ctccaaagaa agctagaact ctttcacttg acgaagagat 1620
ccttcttcat catgttcttc aagtaacacc tccagaaacg agaactcgtg cggtatgaca 1680
acaaatctat atcttttttg gttctggtat gatcactaga ttggaaattc attcagtttc 1740
cttgtttgtc ctgtggcaag aattaacaaa gctttttag aaggattttg aatcatttcc 1800
ataaactggt gtgcaatgca gggttcggta gatatgaagg agaatgtata tgttgtaacct 1860
ctaccagaat tcaagaaacc aaatcaaaag aatgagaatt tctccagtga agtaaaccag 1920
aatagaagaa ccaccatagc accacgctcg agctgggcta ctttcgactg taaggccatg 1980
attcaggctt ttcttttttt tatcttctgt tagttttgag gttttgattc taaatctcta 2040
atgtgaaaca ggaagagaaa agactctatg aagacgaaga agatggaggt tttggaaaaa 2100
caagaatcat catgtgggct ttaatttttag tcaaaaggtt ggcaaagatg ggatgatgaa 2160
```

<210> 10

<211> 247

<212> PRT

<213> Arabidopsis thaliana

<400> 10

```
Met Asn Arg Lys Ala Ser Val Ser Lys Glu Leu Asn Ala Lys His Ser
 1           5           10          15
Lys Ile Leu Glu Ala Leu Leu Lys His Pro Asp Asn Arg Glu Cys Ala
          20          25          30
Asp Cys Arg Ser Lys Ala Pro Arg Trp Ala Ser Val Asn Leu Gly Ile
          35          40          45
Phe Ile Cys Met Gln Cys Ser Gly Ile His Arg Ser Leu Gly Val His
          50          55          60
Ile Ser Gln Val Arg Ser Ile Thr Leu Asp Thr Trp Leu Pro Asp Gln
```

65					70					75				80
Val	Ala	Phe	Met	Lys	Ser	Thr	Gly	Asn	Ala	Lys	Gly	Asn	Glu	Tyr
				85					90				95	
Glu	Ser	Glu	Leu	Pro	Gln	His	Phe	Glu	Arg	Ser	Ser	Ser	Asp	Thr
			100					105					110	
Ile	Arg	Ala	Lys	Tyr	Ser	Glu	Lys	Arg	Trp	Val	Ser	Pro	Gly	Ala
		115					120					125		
Gln	Pro	Ala	Pro	Ile	Val	Ser	Gln	Leu	Ser	Cys	Lys	Val	Ser	His
	130					135					140			
Val	Glu	Ser	Gly	Tyr	Lys	Pro	Glu	Thr	Pro	Lys	Lys	Ala	Arg	Thr
145					150					155				160
Ser	Leu	Asp	Glu	Glu	Ile	Leu	Leu	His	His	Val	Leu	Gln	Val	Thr
			165					170						175
Pro	Glu	Thr	Arg	Thr	Arg	Ala	Gly	Ser	Val	Asp	Met	Lys	Glu	Asn
			180					185					190	
Tyr	Val	Val	Pro	Leu	Pro	Glu	Phe	Lys	Lys	Pro	Asn	Gln	Lys	Asn
		195					200					205		
Asn	Phe	Ser	Ser	Glu	Glu	Glu	Lys	Arg	Leu	Tyr	Glu	Asp	Glu	Glu
	210				215						220			
Gly	Gly	Phe	Gly	Lys	Thr	Arg	Ile	Ile	Met	Trp	Ala	Leu	Ile	Leu
225					230				235					240
Lys	Arg	Leu	Ala	Lys	Met	Gly								
				245										

<210> 11  
 <211> 3180  
 <212> DNA  
 <213> Arabidopsis thaliana

<400> 11  
 gctgagacta ttaaacccca aacatatgaa tcagattcca aaaaatagag aatccctacg 60  
 atgattaaga tgcagtctct caattttccc gcgcgttttt cttcgtcttt cccggttaac 120  
 aactttacgt cgtcgtttca caatcataaa aattaaacgg ttccgatgtg atgatacggg 180  
 tgacaacaga tccaacgggc tatatgtgat gttcacaaaa tcacatggct gtgacagaaa 240  
 gactgtgacg gctatggcct attgagattt gttaattggg ggagttgaga tttctcagct 300  
 gttgttaggg atttgtatga aatgttctaa ttgtttgaat gaatgaatca aatgttataa 360  
 tttgtgcatt ggaaaataat atataactag agttgaaaag cttctaataa gcattattgt 420  
 tctaaaaaga tagtcaacag ggagataaca aggatttgag ttcaaaagaa aagaaagaaa 480  
 aagatacaac aattcagaat gaaagagtaa attctggtaa ctgtgacttt gctgggattt 540  
 ggctactcta cgtaccaga cagtgaggac ggaataatgt gaagctgaac aattcctcaa 600  
 gtccatgctt catgaagtgt tctgccgctt tttggccttt agttatgtta ataagactct 660  
 acattagggt cacctgttgg acaattccag taccaatctt tttttatctg cttattagt 720  
 aaaaataaaa gaatatcatc aaagacttat ggtttaaaac agtgcaatgc ataacaatca 780  
 atgaacaaga aacaaacctt gacactcaga atctgtccct gcttcacac ttcagttaat 840  
 tcctttcttca gacccccatc agttgttctc ccgttcatat tcacagcaag gacatttggt 900  
 gtcttaatgc tcacctggac tttaaactga cttccacaag ttaggggttga gcggaagaag 960  
 aaaacgagag tagttttagt ttttttggtt gttccttcca gaccgggcc gatatcgaag 1020  
 cgaccaaagc ccatgctttt tgagcaaaca cgttttttagc agagaccttg gaaatattga 1080  
 gtgaagctct cacgtgacaa aaacacgcac aaaattattc aagttaccac gtttattaag 1140  
 caaacgatt gagccaaaaa aaacgcacatc gaatctggaa cctggatcag atctagtcag 1200  
 gggtcagatc ggagagcccg caatataatg gcagcggcga gacgattacg gacgctccaa 1260  
 tctcagccgg agaacaaggt ctgtgtcgat tgctcccaga agaattccaca atgggcatcg 1320  
 atttcatatg gaattctcat gtgcttgga tgctccggta agcaccgtgg tttaggtgtt 1380  
 cacatctcat tcgtcagatc cgtcaccatg gattcatggg ccgagatcca gatcaagaaa 1440  
 atggacgctg gaggcaacga gcgtctcaac aattttctcg ctgagtcagg gatctcgaaa 1500  
 gagactgata tcactctcaa gtacaattcc aacgccgcgt ctgtgtatcg agatcggatc 1560

```

caagcttttag ctgaggggaag acaatggaga gatccgccga ttgttaagga atcggttggt 1620
ggtggattga tgaataagaa gcctccgttg tctcaaggcg gtggtagaga ttctggtaat 1680
ggtggatggg ataattggga taacgatgat tcgttttagat ctacggatat gaggaggaat 1740
caatcggcgg gtgatttttag gtcacgagg ggtcgtggtg ctccggcgaa gtcgaaatcg 1800
tctgaggata tatattcacg gtctcagctg gaggcgctcg cggcgaataa ggagagtttc 1860
tttgcgaaaa ggatggctga gaatgagtct aagcctgagg gacttcctcc ttcacaagggt 1920
ggtaagtatg ttgggttttg atctagtcca ggtccagctc cgagaagcaa tcaacagagt 1980
ggtgggtggtg atgttttctc tgttatgtct gaggtaaatt tggaagcttt ttgagagtga 2040
tttggttaga tgcgacatgc gagtgacttc tctgtttatc ctgtaaataa atgtgtttgt 2100
tttacgcgta tatgcttata gggttttgga agattgtctc ttgttgctgc atcagctgca 2160
aatgttggtc agactggaac catggagttt acttccaagg tacttctttt atcatttctg 2220
cttcgatggt gtggttgatt cgtttgcatc gtgatcagta agctcactcc ttggtaacat 2280
tctgtagtct agttgttaag tttatattga gatcgtgact attcgcttgg tgtctgtcta 2340
attgcccgtc tgctcattgc tctgtttggt agattatccc atttttgaca ttgttatgta 2400
acacaaaatt agagtctttt ctagctgcat aatcttctta ctttaattgc agtggttaaag 2460
ctcttttttt ttttttttgt ctttatgccc ctgcaaaatc tctagggaga tcctctaaaa 2520
cgctgaactg agcataatgc cggatgctcg tccttctttt caaataactgc taacattaga 2580
aattatagaa ttttgaagac aagttagata agaaaccttt gttcattgtg cagggtcaaag 2640
aaggtggctt agatcagacg gtcagtgaga ctgttaatgt tgttgcgagt aagacaacag 2700
agataggaca gaggacatgg gggatcatga aaggagtgat ggcaattgcc tcacaaaagg 2760
ttgaagagtt cactaaagaa gaagcatcaa cttggaatca acagaataaa actgagggca 2820
acggttacta ccagaactct gggattggaa acaaaacagc aaattcatct tttggaggat 2880
cacaatcatc atcaagtggg cacaacaaca gttatcgtaa ctccaattct tgggatgact 2940
ggggagaaga gaacaatagc aaaaaggaag cagcaccaaa ggtgtcgact tctaattgat 3000
atgacgacgg cggttgggct ggttgggatg ataattgatgc taaagatgat gatttctatt 3060
atcagcctgc aagcgataag aaatctgtag gtcacaatgg gaaatcagac actgcttgga 3120
ccggtggagg ttttctctaa cggtaaagcac caaatcaagt taaacgaatc gaatatgtaa 3180

```

<210> 12

<211> 456

<212> PRT

<213> Arabidopsis thaliana

<400> 12

```

Met Ala Ala Ala Arg Arg Leu Arg Thr Leu Gln Ser Gln Pro Glu Asn
 1          5          10          15
Lys Val Cys Val Asp Cys Ser Gln Lys Asn Pro Gln Trp Ala Ser Ile
          20          25          30
Ser Tyr Gly Ile Phe Met Cys Leu Glu Cys Ser Gly Lys His Arg Gly
          35          40          45
Leu Gly Val His Ile Ser Phe Val Arg Ser Val Thr Met Asp Ser Trp
          50          55          60
Ser Glu Ile Gln Ile Lys Lys Met Asp Ala Gly Gly Asn Glu Arg Leu
65          70          75          80
Asn Asn Phe Leu Ala Gln Tyr Gly Ile Ser Lys Glu Thr Asp Ile Ile
          85          90          95
Ser Lys Tyr Asn Ser Asn Ala Ala Ser Val Tyr Arg Asp Arg Ile Gln
          100         105         110
Ala Leu Ala Glu Gly Arg Gln Trp Arg Asp Pro Pro Ile Val Lys Glu
          115         120         125
Ser Val Gly Gly Gly Leu Met Asn Lys Lys Pro Pro Leu Ser Gln Gly
          130         135         140
Gly Gly Arg Asp Ser Gly Asn Gly Gly Trp Asp Asn Trp Asp Asn Asp
145         150         155         160
Asp Ser Phe Arg Ser Thr Asp Met Arg Arg Asn Gln Ser Ala Gly Asp
          165         170         175

```

Phe Arg Ser Ser Gly Gly Arg Gly Ala Pro Ala Lys Ser Lys Ser Ser  
180 185 190  
Glu Asp Ile Tyr Ser Arg Ser Gln Leu Glu Ala Ser Ala Ala Asn Lys  
195 200 205  
Glu Ser Phe Phe Ala Lys Arg Met Ala Glu Asn Glu Ser Lys Pro Glu  
210 215 220  
Gly Leu Pro Pro Ser Gln Gly Gly Lys Tyr Val Gly Phe Gly Ser Ser  
225 230 235 240  
Pro Gly Pro Ala Pro Arg Ser Asn Gln Gln Ser Gly Gly Gly Asp Val  
245 250 255  
Phe Ser Val Met Ser Glu Gly Phe Gly Arg Leu Ser Leu Val Ala Ala  
260 265 270  
Ser Ala Ala Asn Val Val Gln Thr Gly Thr Met Glu Phe Thr Ser Lys  
275 280 285  
Val Lys Glu Gly Gly Leu Asp Gln Thr Val Ser Glu Thr Val Asn Val  
290 295 300  
Val Ala Ser Lys Thr Thr Glu Ile Gly Gln Arg Thr Trp Gly Ile Met  
305 310 315 320  
Lys Gly Val Met Ala Ile Ala Ser Gln Lys Val Glu Glu Phe Thr Lys  
325 330 335  
Glu Glu Ala Ser Thr Trp Asn Gln Gln Asn Lys Thr Glu Gly Asn Gly  
340 345 350  
Tyr Tyr Gln Asn Ser Gly Ile Gly Asn Lys Thr Ala Asn Ser Ser Phe  
355 360 365  
Gly Gly Ser Gln Ser Ser Ser Ser Gly His Asn Asn Ser Tyr Arg Asn  
370 375 380  
Ser Asn Ser Trp Asp Asp Trp Gly Glu Glu Asn Asn Ser Lys Lys Glu  
385 390 395 400  
Ala Ala Pro Lys Val Ser Thr Ser Asn Asp Asp Asp Asp Gly Gly Trp  
405 410 415  
Ala Gly Trp Asp Asp Asn Asp Ala Lys Asp Asp Asp Phe Tyr Tyr Gln  
420 425 430  
Pro Ala Ser Asp Lys Lys Ser Val Gly His Asn Gly Lys Ser Asp Thr  
435 440 445  
Ala Trp Thr Gly Gly Gly Phe Leu  
450 455

<210> 13  
<211> 3000  
<212> DNA  
<213> Arabidopsis thaliana

<400> 13  
ttatgaatga gaaggtacaa gtatatat ttt gtcctaattt gctctgtttt ttgttgttgt 60  
caatgtgttaa aagttgtaaa tgaaaatctt gtcttatact agtttggtat atcatatatt 120  
ggaatgtgtt ttggtatcat ctatgggggtt ttctgtgttt aatattgtcg aacacctaag 180  
atggggcatg attgttgata atgaaaagct atgcgacttt ctcagggtct ttttctgtat 240  
taaaaattaa gtttagttctt tgtttagatta ggcaccaact atataataat tcaaagaatg 300  
acaatgatga ggcaactact tctatgagcc aaatccaaaa gtaaaaaactc tttaaaataa 360  
cgtcaatatt taataatggt aaaaccaaac acaacctaatt gcattttatt gatttatttg 420  
tacagccaat cacaacttta gtttctaaat taagagattt ttataaggct gtttttgtaa 480  
aaaaaagaag taattaaatg ttgtgataat tgttttaatg acgtgtcaac tacaatattt 540  
gcacgaattt gaaaatcaca aaatcgaaaa tccacttttt tgttttgttt ctctctttgg 600  
ccgacaaata aaaaaaaaaac aaaaaacaca actaatcata ggcttctcca tcttcttgtc 660  
tgcaggatga tgcaattttt cagacaattt tcttccaaaa tcttttcgta attctgtttt 720  
atttttcaac gtttttaggtt tttaccaatc cgccgtagtt atatccaaca ttaatttttt 780



```

tccctcttct cagaaaaaaaa taaaattcaa ctcatctcta gagtttttag gttcttccaa 840
gaaattgaat ttggaaggag gctttgatgg gtttgaattt tccataatcg tcccttgttt 900
acggtatctt tctcaaggaa tccctgaaaa actatttctt ggtctttgtg taattgtctg 960
gtgcaaatac agttattgtt tttatcttgt gttgttgatt cagactcttg ttgtttgaaa 1020
atgctatggc tctgtagggg atgttgtttt gattttggga aagtcttggt tgaatggcca 1080
cggcttttct gaacattcgc gtgttcttct ttgtctcggc tctgcttcga aatgtctctc 1140
ggccaagaaa atgttgatcc tgttgaagtt tcaggtaaaa tcctacacaa tcctttaata 1200
attattatcc accaagtttt taaacttgta aaggtttcaa atttttgcct ttttgtttta 1260
tagggtcgca tgcttgctta tatgaacttt tatgttctga gacacccaaa tggactcctc 1320
ttagggttga agatttgcaa acatcttctt ctggtaatta ttacttaatg atggagataa 1380
acattcttaa gatattgttt aagtgttagt tggagacaat ctcatgtcct gtttgttttg 1440
ttttagatcc cagagatcgg ttggagaagt tgctgaagca acctgggaat aaatattgtg 1500
ctgactgtgg ctctcctgaa ccaaaatggg tgtaagttga ttaatacttc tgtgttgttt 1560
gtacatttct tttgatgaac tggattgatt catttcattt cgtttttagat cgttgagtct 1620
tgggtgattt atctgcatta agtgttctgg tgtacacaga agtcttgagg ttcatatatc 1680
aaaggtaact tcttttcata gacaactctg atttttctct gcttctgtgt gtttctagag 1740
tcttttatcg ataaatttga ttgaatgatg atcgcagggt ctatcagtaa agctagacga 1800
gtggacagat gatcagggtg acatgcttgt aggttacggg ggaaacacgg cagtgaacga 1860
aagattcgaa gcttgcaaca tcgaccagtc aaagaaacca aaaccagatt ctactaatga 1920
ggaacgaaat gatttcatta ggtgacattt tttacttaac aatttgttat aatggatttg 1980
tatgtataat catcttgctc ctaaactctt aaatctttca gaaaaaata tgagcagcac 2040
cagtttatgg atccaaagga tgggtgcttg tgcacttatc agcagcctag cagaacaaac 2100
acttcaccac cgtcttttatg ttctgcaagc caccgttcta caaaaaaccg tattggtcat 2160
gcatttagga atagctgggg aagaagagaa tctgatcaca aaggaccaa gaagagcaat 2220
tccatggtaa caatcactat acatacatac atacatgttt gggtagttac tgttgccaac 2280
gttagttaat ttttggtggg gttttatagg caggtatggg tgagtttggt gggttgatta 2340
aggttaacgt ggtaaaagga accaaccttg cggttcgaga cgtgatgacc agcgatcctt 2400
atgttatcct tgctcttggc caacaagtga gctctctacc aaatctctct agacttgat 2460
gatttgaagt taacctcggg ctttttcaat gtttgtttgt tgtagtcggg aaaaacacgg 2520
gtgataaaga acaacttgaa tcctgtgtgg aatgagacgc taatgcttct gatacccgag 2580
cccatgcctc ctctcaaagt ggtaagaaca gagagctttt ccaaactcgg ataaacacta 2640
ctactgaacc gagcttgata tgtaaatttt ttgcagctag tgtacgacaa ggatacatc 2700
tcgacagatg atttcatggg agaggcagag atagacatac aaccattggg gagtgcagca 2760
aaagcatacg agacatcgag cataaaggaa ccgatgcagc tgggaagttg ggtggcgagc 2820
aaagagaaca cattggtgag tgatggcata atcttacttg aagacgggaa agtgaacaa 2880
gacatttcac ttaggctaca aaatgttgaa agaggtgttc ttgagatcca gcttgaatgt 2940
cttctctca ctcaatgatg ataccttctt cttcatccct cttctttttt ttttcttta 3000

```

<210> 14

<211> 373

<212> PRT

<213> Arabidopsis thaliana

<400> 14

```

Met Ala Arg Ser His Ala Cys Leu Tyr Glu Leu Leu Cys Ser Glu Thr
  1             5             10             15
Pro Lys Trp Thr Pro Leu Arg Val Glu Asp Leu Gln Thr Ser Ser Ser
      20             25             30
Asp Pro Arg Asp Arg Leu Glu Lys Leu Leu Lys Gln Pro Gly Asn Lys
      35             40             45
Tyr Cys Ala Asp Cys Gly Ser Pro Glu Pro Lys Trp Val Ser Leu Ser
      50             55             60
Leu Gly Val Phe Ile Cys Ile Lys Cys Ser Gly Val His Arg Ser Leu
      65             70             75             80
Gly Val His Ile Ser Lys Val Leu Ser Val Lys Leu Asp Glu Trp Thr
      85             90             95

```

Asp Asp Gln Val Asp Met Leu Val Gly Tyr Gly Gly Asn Thr Ala Val  
 100 105 110  
 Asn Glu Arg Phe Glu Ala Cys Asn Ile Asp Gln Ser Lys Lys Pro Lys  
 115 120 125  
 Pro Asp Ser Thr Asn Glu Glu Arg Asn Asp Phe Ile Arg Lys Lys Tyr  
 130 135 140  
 Glu Gln His Gln Phe Met Asp Pro Lys Asp Gly Ala Leu Cys Thr Tyr  
 145 150 155 160  
 Gln Gln Pro Ser Arg Thr Asn Thr Ser Pro Pro Ser Leu Cys Ser Ala  
 165 170 175  
 Ser His Arg Ser Thr Lys Asn Arg Ile Gly His Ala Phe Arg Asn Ser  
 180 185 190  
 Trp Gly Arg Arg Glu Ser Asp His Lys Gly Pro Lys Lys Ser Asn Ser  
 195 200 205  
 Met Ala Gly Met Val Glu Phe Val Gly Leu Ile Lys Val Asn Val Val  
 210 215 220  
 Lys Gly Thr Asn Leu Ala Val Arg Asp Val Met Thr Ser Asp Pro Tyr  
 225 230 235 240  
 Val Ile Leu Ala Leu Gly Gln Gln Ser Val Lys Thr Arg Val Ile Lys  
 245 250 255  
 Asn Asn Leu Asn Pro Val Trp Asn Glu Thr Leu Met Leu Ser Ile Pro  
 260 265 270  
 Glu Pro Met Pro Pro Leu Lys Val Leu Val Tyr Asp Lys Asp Thr Phe  
 275 280 285  
 Ser Thr Asp Asp Phe Met Gly Glu Ala Glu Ile Asp Ile Gln Pro Leu  
 290 295 300  
 Val Ser Ala Ala Lys Ala Tyr Glu Thr Ser Ser Ile Lys Glu Pro Met  
 305 310 315 320  
 Gln Leu Gly Ser Trp Val Ala Ser Lys Glu Asn Thr Leu Val Ser Asp  
 325 330 335  
 Gly Ile Ile Leu Leu Glu Asp Gly Lys Val Lys Gln Asp Ile Ser Leu  
 340 345 350  
 Arg Leu Gln Asn Val Glu Arg Gly Val Leu Glu Ile Gln Leu Glu Cys  
 355 360 365  
 Leu Pro Leu Thr Gln  
 370

<210> 15  
 <211> 5640  
 <212> DNA  
 <213> Arabidopsis thaliana

<400> 15  
 tgtcgtacgt taaaaattac actctaacc caccacacact aactattttac aatttttacca 60  
 taataatctt cttaattttac aattctgcc tctgtcttctt cttcagggag ggattttggt 120  
 aggaccatcg gcttttaggta gaaacatggc gtacatggac cgtatatattc cgaaatggag 180  
 tatgccgata ctcgaatccg tcgcgagcat aggacttctc ttcttcctct tcctcgtcgg 240  
 tctagaactc gatttatcat cgatccgacg aagcggcaaa cgcgctttcg gaatcgcagt 300  
 cgctggaatt acactaccgt ttatcgccgg cgctcgagtc gcgtttgtga tccgtaacac 360  
 tctctacacc gccgcggata aaccagggtta cgccgagttt ctcgttttca tgggagtcgc 420  
 actctcgatc acagcttttc cggtagttgc gcgtatttta gcagagctca agcttttaac 480  
 gactcagata ggagaaaccg cgatggctgc agccgctttt aacgatgtag ccgcgtggat 540  
 ttactcgcct ttagcggttg cgtttagcggg taatggcggg gagggagggtg gagagaaaaa 600  
 gagtccgtta gtgtcgttgt gggttttggt atcgggcgct gggtttgtgg tttttatggt 660  
 ggttgtgatc cgaccggaa tgaaatgggt cgcgaaacgt ggatctcctg aaaacgacgt 720  
 cgtacgcgag tcttacgtgt gtttgacgtt agccggtggt atgggtttccg gtttcgcgac 780

ggattttaatt	gggatttcatt	cgatttttgg	agcgttttgtt	ttcggtttga	ctataaccgaa	840
agatggagag	tttggtcagc	gatttgattga	acgaattgag	gatttttgtt	ccggtttact	900
cttaccgctt	tatttcgcta	cgagtgggtt	gaagactgac	gtggctaaga	ttagaggagc	960
tgagtcgtgg	gggatgttgg	gtcttggtgt	tgttacggct	tgtgccggga	agatagtcgg	1020
aacttttgtt	gtggcgggtga	tggttaaagt	tccggcgaga	gaggcgttga	cacttggttt	1080
cttgatgaat	actaaagggt	tagtggagct	cattgtactc	aacataggca	aggagaaaaa	1140
ggttagtttt	gtcttccttt	tttctgattt	tttaagggtc	ttgtttacgc	ttttagttat	1200
ctgatgaata	ttataaatat	aaaaaaccta	gtaacactaa	agttatttga	tcatgttttag	1260
tggataaagc	atataaaaca	aaatacgatt	attatattga	tttaatcgca	tctatacctt	1320
tatttttaggg	tgtttagata	tatttataaa	tttaggttct	agttggatcc	atgtgtatat	1380
gcgtccggtc	cgctcaatat	tggtaggctg	gtcggggatc	cggaatagta	aaattgctta	1440
tgtttttattt	gaacattaac	caaccgttgt	ataaattcaa	attgatagct	aggcaggccc	1500
ggctctaggg	gagtgccaga	ggtgctagta	cacagggtcc	tcattttttt	ttcttaattt	1560
taagtcttct	agtttgcaat	tttttttttt	tttaagggaa	aactacaaaa	aaaacaacca	1620
ccaaaataaa	agataataag	tttaaaataa	aaatacagta	aacacatgtc	acataaagtt	1680
attttgttta	gatttaaggg	ctatttttgt	ttgtagcaca	gggcccaata	aaatattgag	1740
ccgggctgct	aggtttacta	tcactataat	agacacgggt	gcaatttgat	agctagggtt	1800
gctctcaacc	gttgtatagt	aatattagtc	accataatac	aaatctgcag	ttcattaatc	1860
atagactgat	ggacacgggt	gcaatttgat	agctaagttt	actatgtgca	tcgaagatga	1920
tgcagttagc	aatggtagct	tcaaaacatt	agtccgtgat	tcctttgtca	cctccgaaat	1980
aaacattttt	atcttaataa	tatgtgcaag	attatactat	aatgcttctg	gaaatatgta	2040
gtatataaaa	ttttttgttt	aaacgtgtct	tcccaacaaa	gattatagtt	atatactaca	2100
cttttattat	aaaggcggtt	cttattgttt	tggggtaata	aagaaaaact	gatcaattaa	2160
ggactagtca	tatatatgca	tgcatgaaaa	ctttattttt	attttttttt	ctgcatgaaa	2220
actttatacg	aataatacctt	ttcgaatggg	ccaatgttta	cgtaatcgtc	acttactgat	2280
ccacttgcag	atttatgctc	ttcttcataa	tgcaacaata	aagtgaaata	atgattaccc	2340
attaatgtag	taagtgtggt	tatttttaaa	taaactgttt	gtacgcgggg	ttgactttta	2400
ccaggtagta	aacgacgaga	cgtttgcaat	actagtgtca	atggcactct	tcacaacgtt	2460
cataacgacg	cctactgtaa	tggccattta	caagccggca	cgtggcacc	accgcaaact	2520
aaaagacttg	tggcgagcc	aagactccac	caaggaagag	cttcgcatcc	tagcctgcct	2580
ccacggccca	gccaatgtct	cctccctcat	ctctctcgtc	gagtccatcc	gaaccaccaa	2640
ggtaaattac	ctttctttta	tattttttacg	ttacaataat	ctatatttaa	atgtgtaaat	2700
ctatgataag	agttatatca	gaaaattaa	atatcattga	aatgctcaat	gaaaatgtat	2760
cctacgtata	attacacaca	ttttgtatag	ttaaaattaa	aaatcagctg	ggtaataatt	2820
tataatcttg	gttaataaatt	taaaaagtcg	tatttgtttt	ggcagatact	acggctaaag	2880
ctgtttgtga	tgcattctgat	ggaactaacg	gaacggtctt	cgtcaatcat	aatggtgcaa	2940
agagcccgtg	aaaacggact	tcctttcggt	caccgttacc	gtcatggtga	gcgtcacagc	3000
aacgtcatag	gaggcttcga	agcctatcgt	caactaggcc	gggtcgcagt	ccggcccatc	3060
accgcagtct	ctccattacc	cacaatgcac	gaagacattt	gccacatggc	agataccaag	3120
agggtcacaa	tgatcatttt	acctttccac	aaacgatgga	acgctgatca	tggtcatagc	3180
caccaccacc	agacaggagg	aggagatgga	aacgtaccgg	aaaacggttg	tcattggttg	3240
cgatttggtt	accaaagggt	tttgaagaat	gcgcggtgtt	cggtggcggt	tcttgtagac	3300
cgtggagctg	ggtccattga	ggcccaaact	ttgagcttag	atgggtcgaa	tgtggttgaa	3360
agggtttgtg	tgattttctt	tgggtgggct	gatgaccgtg	agtctataga	gctcggcggt	3420
agaatggctg	agcatccggc	cgttaaagtt	accgttatta	ggtttttggg	aagagaaacg	3480
ttgaggagta	ccgcggtcac	tttacgaccg	gcaccgtcta	aaggcaagga	gaagaactat	3540
gcctttttta	caaccaacgt	ggatccagaa	aaagaaaagg	taaatctctt	ttgatcccct	3600
atgttttatat	accagttatg	acaaatataa	ctatagcttt	ctttcttgga	aaaataatta	3660
taggaattag	acgaaggggc	attggaagac	ttcaagagca	aatggaaaga	aatggtggag	3720
tacaaagaaa	aggaaccaa	caacatcatt	gaagaaatac	tgtcaatagg	acagagtaaa	3780
gactttgatc	taatagtggg	tgggaagagg	aggataccgt	cggccgaggt	ggcggcatta	3840
gctgagcgtc	aagctgaaca	tcctgagtta	ggtccctatc	gagacgtgct	cgctcttcg	3900
atcaaccaca	tcattccatc	aatccttggt	gttcaacaac	acaacaaagc	tcattgtagag	3960
gatattacgg	tttccaaaat	tgttagttag	tcttctctaa	gtattaacgg	agacacaaa	4020
gtatgataac	aataaataaa	ttgatctagt	acttaaacct	cggcttaaatg	catggttaaa	4080
gtggttagtt	gaagatgtag	tttatctaca	attatagat	agctcttgag	taagaattgt	4140
aagatcgtct	acataataat	aaccatgatt	gggcatcttg	ggcatcgtct	acataataat	4200

```

tcatatttgg actaaatagt aaatacaatt atcatttggg ccatttgaga aactaccgga 4260
aacctctcac gtgccagaga cacgtaccaa aaaaaacccc gaacatttat taggaagaag 4320
agaaaaaacg gaaaagaaaa aaaaacgcat caatctgagc agcacaagtc tgcgagattt 4380
ggattagatc tgattcaggt tggattgac atcgttcgga gctccgggaa acatggcggc 4440
gacgagacaa ttacgaactc tccaatctca gcctgaaaac aaggtatgtg tcgattgcgc 4500
tcagaagaat cctcaatggg cgtcggtttc gtacggaatc ttcattgtgt tggaaatgctc 4560
cgggaaacac cgaggcttag gcgttcacat atccttcgtc agatccgtaa ccatggattc 4620
atggctctgc atccagatta agaaaatgga agctgggtgt aacgaacggc tcaacaaatt 4680
cttcgcgcaa tacggaatcg ctaaggagac agatattatc tccaagtaca attcgaacgc 4740
tgcttctgtg tatcgtgacc ggatccaagc tttagctgaa ggtagaccat ggaatgatcc 4800
gccagttggt aaggaagcga ataagaagcc tccgttggct cagggcgggt acggaaacaa 4860
caataacaat aacaatggag gatgggatag ttgggataac gatgattctt acaaactctga 4920
tatgagaagg aatcagtcag cgaatgattt cagggcatcg ggaaatagag aaggtgcaca 4980
tgtgaagtca aagtcgtcgg aggatatcta cacgcgatcg cagcttgagg cttctgccgc 5040
tgggaaagag agtttcttcg cgaggagaat ggcggagaat gagtctaagc ctgaaggtct 5100
tcctccttcg caaggtggca agtatgtagg attcggatca agctcggctc caccaccgag 5160
aaataatcaa caggatgatg ttttctccgt tgtttctcag gtgaattgaa tgaatgtttt 5220
gcaattcctt tttgaattcg gtgaattacg ttttgtgtgt tgattcgtgt ttaaaaattg 5280
ctaagggttt tggaagactg tctctgggtg ctgcatctgc agctcagtca gctgctagtg 5340
ttgttcaaac aggaaccaag gagttcacat ccaaggtaac taactatctg tactctctgc 5400
ttgatttgca tagagtttgt gaaatatcta gttactgcgt tgcttgatgc ctcaacgaca 5460
cgtctagtga gaatctttta ctctgtagaa agcacaattc ttagatgctc tctgtagaat 5520
tcttgtttac cataatactg ctggcaatag agttttggaa aagtggagtc aaaatcagat 5580
aagaaacat tttattgcag gtgaaggaag gtgggtatga tcacaagggt agtgaaactg 5640

```

<210> 16

<211> 459

<212> PRT

<213> Arabidopsis thaliana

<400> 16

```

Met Ala Ala Thr Arg Gln Leu Arg Thr Leu Gln Ser Gln Pro Glu Asn
 1             5             10             15
Lys Val Cys Val Asp Cys Ala Gln Lys Asn Pro Gln Trp Ala Ser Val
      20             25             30
Ser Tyr Gly Ile Phe Met Cys Leu Glu Cys Ser Gly Lys His Arg Gly
      35             40             45
Leu Gly Val His Ile Ser Phe Val Arg Ser Val Thr Met Asp Ser Trp
      50             55             60
Ser Ala Ile Gln Ile Lys Lys Met Glu Ala Gly Gly Asn Glu Arg Leu
      65             70             75             80
Asn Lys Phe Phe Ala Gln Tyr Gly Ile Ala Lys Glu Thr Asp Ile Ile
      85             90             95
Ser Lys Tyr Asn Ser Asn Ala Ala Ser Val Tyr Arg Asp Arg Ile Gln
      100            105            110
Ala Leu Ala Glu Gly Arg Pro Trp Asn Asp Pro Pro Val Val Lys Glu
      115            120            125
Ala Asn Lys Lys Pro Pro Leu Ala Gln Gly Gly Tyr Gly Asn Asn Asn
      130            135            140
Asn Asn Asn Asn Gly Gly Trp Asp Ser Trp Asp Asn Asp Asp Ser Tyr
      145            150            155            160
Lys Ser Asp Met Arg Arg Asn Gln Ser Ala Asn Asp Phe Arg Ala Ser
      165            170            175
Gly Asn Arg Glu Gly Ala His Val Lys Ser Lys Ser Ser Glu Asp Ile
      180            185            190
Tyr Thr Arg Ser Gln Leu Glu Ala Ser Ala Ala Gly Lys Glu Ser Phe

```

195	200	205
Phe Ala Arg Arg Met Ala Glu Asn Glu Ser Lys Pro Glu Gly Leu Pro		
210	215	220
Pro Ser Gln Gly Gly Lys Tyr Val Gly Phe Gly Ser Ser Ser Ala Pro		
225	230	235
Pro Pro Arg Asn Asn Gln Gln Asp Asp Val Phe Ser Val Val Ser Gln		
245	250	255
Gly Phe Gly Arg Leu Ser Leu Val Ala Ala Ser Ala Ala Gln Ser Ala		
260	265	270
Ala Ser Val Val Gln Thr Gly Thr Lys Glu Phe Thr Ser Lys Val Lys		
275	280	285
Glu Gly Gly Tyr Asp His Lys Val Ser Glu Thr Val Asn Val Val Ala		
290	295	300
Asn Lys Thr Thr Glu Ile Gly His Arg Thr Trp Gly Ile Met Lys Gly		
305	310	315
Val Met Ala Met Ala Thr Gln Lys Val Glu Glu Phe Thr Lys Glu Gly		
325	330	335
Ser Thr Ser Trp Asn Gln Gln Ser Glu Asn Glu Gly Asn Gly Tyr Tyr		
340	345	350
Gln Asn Phe Gly Asn Gly Asn Lys Ala Ala Asn Ser Ser Val Gly Gly		
355	360	365
Gly Arg Pro Gln Ser Ser Ser Thr Ser Gly His Tyr Asn Asn Ser Gln		
370	375	380
Asn Ser Asn Ser Trp Asp Ser Trp Gly Glu Asn Glu Asn Lys Lys Thr		
385	390	395
Glu Ala Val Ala Pro Lys Gly Ser Ser Ala Ser Asn Asp Asp Asp Gly		
405	410	415
Trp Thr Gly Trp Asp Asp His Asp Ala Lys Asp Asp Gly Phe Asp Gly		
420	425	430
His Tyr Gln Ser Ala Gly Asp Lys Lys Ser Ala Gly His Asn Gly Lys		
435	440	445
Ser Asp Thr Ala Trp Thr Gly Gly Gly Phe Leu		
450	455	

<210> 17  
 <211> 4320  
 <212> DNA  
 <213> Arabidopsis thaliana

<400> 17  
 tgttgtgccg ttcattgtgaa catacgccgg ttgaaaagggt gatatttttcc ggtgaaagggt 60  
 gaagactttt ttccggtgag aagaagagag aggtgacgtg tagggaggaa aaatcaaaaag 120  
 agggaaaaag ctaagcaaatt ggcgttttagt gattgttttg agaagatgat tctctctaca 180  
 atactatatt ttattttttat tgttttttcta aaacaattgt aaataatttt ttctttatttt 240  
 cttaagtttt tgttgagagt tgcgacatat tatatgacaa aaaccaaacg ataataattt 300  
 gggttaactgt tacgaaaacg taaataaatt attcatggag tgataattct cgtttggaca 360  
 ctgttttgtc tgaaacataa cttagatccg tttattatca catagccact tattgtttta 420  
 tggagaaaaa actaataaat aatccattta tgggtgatata gtgacttaga gtttcgaata 480  
 tggaccaatg ctataattca aaatttcata agttagaaat ctaaaatata aattttattt 540  
 ttcataataa ttaatatattt aaactgcaaa aaagaattgc attttttaaaa ggaaaaaaat 600  
 agattctact caattttatat caattaagtt aggaatttaa aataatattt caactgattt 660  
 tatgttagtt ataggaaaat aaatatatat gaaaaaacta aaagtgtttt ctttctccaa 720  
 tcatcttttt ttttttaata tcatttcatt atgttcattt tattaataat cagtttgaa 780  
 cggttaatatg aaatttacgt tttcaaataa ttatccgggtg taaatttttt tttggtgtaa 840  
 tggttaacta aatatccatt aatacttcat cacaccatat atgaagtttg attttcatag 900  
 attacaaatt attgaagatt aatggaaaacg atttctatct agagatttta gtgtggtgca 960

tagaaccgta	tgctgtagta	cagtaccatc	tgtcaaactg	taaaattgta	caagcatcga	1020
tgtaaaaacta	tcgggttggtg	agttgactac	gaaaaccata	aaaagaaaac	tcaaaaaatg	1080
atgttgctagt	cctaaaaaatt	atgttgtaata	tatattcaaa	taataatgta	tccaacaaca	1140
tagcaacttc	cgttcaattt	ttgaaagagg	aagaaattaa	cgtataaaaat	ttgtattttc	1200
tctataaaaat	tcatattcga	atgttatttt	tcttagacat	tttaaattgt	ttttttcttt	1260
ttttaaatat	tggaattatg	ttgtgtagcc	cactttaatt	gtttgggtcc	tctgtctagg	1320
catcgtctgt	ctgctttcca	tgtttctgtc	accataattg	acatatctat	ttattaacaa	1380
tcttcatatt	tttgtcacgg	tatactgtaa	gttttcttta	accacatttt	tttcatcaaa	1440
ttttttatcg	tttggctaaa	actataatga	ccaaccaaag	tatataattt	tttaaaacgt	1500
tacatatgat	ttttttgtca	aagttacaca	tgattattga	caaagaacta	cacatgataa	1560
tgccaacccat	tacttataaa	caaaatatcc	agaaaaaaaa	agaaagaaga	agaaaagtag	1620
tcagtgaaaa	ggacaacatg	tacaataata	ttcaatgggt	aatcacgatg	gctaaaatga	1680
tccagctcac	gtgattctcg	tggtgatgtg	aattacaaaa	cgactttaga	cccactaatc	1740
gtacactaac	atatgattat	tgacattaca	taataaaaata	tctctacttc	ttgccagttt	1800
tcttacaaga	cattgataaa	catgttacat	gtcacagaaa	cattgtatca	agtaaaaagt	1860
tttactttat	caaaaaagaa	agaaagtaaa	aggttcgaga	ggaatttagt	aagataacct	1920
aattttaatac	cttaatgtac	ttccataaca	agtcgatttt	ttggatttaa	caattatttt	1980
ggttttcaat	ttttcacaa	tctgtcttca	tctttcaagc	gatcctcttt	gcgctaataa	2040
caagatggag	aaaatcatga	taaaatttag	cgatgagggt	ttatcctttt	tcattttctg	2100
ttttatgggt	aagttttgtg	attaaagaat	tagaagtttt	ttacaggatt	tagactatgg	2160
ttagagttta	catttgattt	agaattgtgt	gactttcata	taaaaataat	gacatctacg	2220
aaattacgaa	atacaaatat	gggcttattc	attattgggc	catacaagcc	catcgagttt	2280
agtattgatc	ctctaataca	aaaacgtaaa	caaataagat	aacagaaaaa	caaaaacaaa	2340
aattttctgct	ttgaagaaga	agagtcgatc	cataatcgcc	actttcagat	ttccagattc	2400
tggggaaaca	tctctaaact	cttcaacgat	ggcgactgag	aatctcaccg	ataagaatgt	2460
tgttttcaga	aagctgaaat	caaaatccga	gaacaagggt	agggttactc	aattttcgat	2520
tttgaatttc	gttcagatct	ggagcttata	cgacctaaat	cttccgaatt	gatttatgat	2580
tttgcttcgg	tttttaggtt	tgctttgatt	gtagtgcgaa	gaatccaaca	tgggcttctg	2640
ttccttatgg	gatcttccca	tgcatcgatt	gttctgctgt	tcatcgaagt	ctaggtgttc	2700
atatcagctt	cgtcaggtaa	aactttgaat	cttgaggaac	acaaatttga	actcttttag	2760
cttaattttt	agcttcatgg	acttgtagca	atgtttcacc	ttctggctag	ggtttaagct	2820
gtgattagga	agatgttgac	ttattttttc	ctgttgacca	ctctatttat	agcatttcat	2880
gttggttag	atctattata	agatcatatt	gtttttgtgc	aggtcaacga	acttagactc	2940
gtggagtcc	gagcagctaa	gaacaatgat	gtttggaggg	aacaatcgag	ctcagggtgt	3000
ttttaagcaa	catggatgga	atgatgggtg	taagattgag	gctaagtata	cttcaagagc	3060
tgctgatatg	tatagacaga	ctcttgctaa	agaagttgct	aaagccatgg	ctgaagaaac	3120
tgttttaccg	tcgttatcct	ctgttgctac	ttctcagcca	gtggaatcat	ctgaaaatgg	3180
gtttacttct	gaatctccga	aagagagttc	tttgaagcaa	gaagcagctg	ttgtctcttc	3240
acccaaaagct	tctcagaaaag	ttgttgctag	tacgtttaag	aaacctcttg	tttcgcgaaa	3300
gtctgggaag	actggtgggc	ttggtgctcg	taagcttact	actaaggtaa	cgtttttcgt	3360
ttttataaag	aattatagct	tagcttctcg	gttcttggtt	ttgattagat	tagtatttgt	3420
tgtatatgta	gtcaaaggat	aacctctatg	agcagaagcc	tgaagaacct	gtacctgtga	3480
ttcctgctgc	ttctccaacc	aatgacacat	cagcagctgg	atcatcattt	gcctctcgat	3540
ttgagtactt	tgatgatgag	caatctgggtg	ggcaaagtgg	cacacgggtg	cttagccatg	3600
ttgctccacc	aaagtcatca	aatttcttta	atgaatttgg	aatggacagt	gctttcccca	3660
agaagtcaag	ctcaagctca	tccaaagctc	aggtaaagaa	aagtttcatt	tttaacagaa	3720
ctgaagaaag	agatagaaat	caattctcga	ttctcttttg	tttacctgtt	ttctttttac	3780
ttaggttgaa	gaaacagatg	aagcaagaaa	gaagttttca	aacgcctaat	cgatttctct	3840
tgcccaattt	ttcggaatc	agaacagaga	tgccgatctt	gactcaaaaag	ctacccttca	3900
gaagtctctg	gtatgtcctt	aaccgatcaa	actctatact	agttttcttt	agtctcgttg	3960
ttcatatcatg	cctaattgca	ttacaaatct	atcagggttc	agcagctatt	tcaagttctg	4020
atcttttttg	ccacggacca	gatgattcca	acatcgatat	cactgcaagc	gatctcatca	4080
accgaatttc	tttcagggtg	aagttctgaa	gtagaatcaa	attcttcagc	ttttcttaac	4140
tctgcttata	aggttttttt	atgtgacttt	gtttattatt	gggcacaggc	gcagacaagt	4200
atgtcatcta	ttgctaactt	agctgaggaa	acaaagaata	agctgggaac	atgtgcctct	4260
agtatattca	gtgatcttca	ggatagaatg	ctgtaagaaa	catacaaagg	atcttgctct	4320

<210> 18  
 <211> 402  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 18  
 Met Ala Thr Glu Asn Leu Thr Asp Lys Asn Val Val Phe Arg Lys Leu  
 1 5 10 15  
 Lys Ser Lys Ser Glu Asn Lys Val Cys Phe Asp Cys Ser Ala Lys Asn  
 20 25 30  
 Pro Thr Trp Ala Ser Val Pro Tyr Gly Ile Phe Leu Cys Ile Asp Cys  
 35 40 45  
 Ser Ala Val His Arg Ser Leu Gly Val His Ile Ser Phe Val Arg Ser  
 50 55 60  
 Thr Asn Leu Asp Ser Trp Ser Pro Glu Gln Leu Arg Thr Met Met Phe  
 65 70 75 80  
 Gly Gly Asn Asn Arg Ala Gln Val Phe Phe Lys Gln His Gly Trp Asn  
 85 90 95  
 Asp Gly Gly Lys Ile Glu Ala Lys Tyr Thr Ser Arg Ala Ala Asp Met  
 100 105 110  
 Tyr Arg Gln Thr Leu Ala Lys Glu Val Ala Lys Ala Met Ala Glu Glu  
 115 120 125  
 Thr Val Leu Pro Ser Leu Ser Ser Val Ala Thr Ser Gln Pro Val Glu  
 130 135 140  
 Ser Ser Glu Asn Gly Phe Thr Ser Glu Ser Pro Lys Glu Ser Ser Leu  
 145 150 155 160  
 Lys Gln Glu Ala Ala Val Val Ser Ser Pro Lys Ala Ser Gln Lys Val  
 165 170 175  
 Val Ala Ser Thr Phe Lys Lys Pro Leu Val Ser Arg Lys Ser Gly Lys  
 180 185 190  
 Thr Gly Gly Leu Gly Ala Arg Lys Leu Thr Thr Lys Ser Lys Asp Asn  
 195 200 205  
 Leu Tyr Glu Gln Lys Pro Glu Glu Pro Val Pro Val Ile Pro Ala Ala  
 210 215 220  
 Ser Pro Thr Asn Asp Thr Ser Ala Ala Gly Ser Ser Phe Ala Ser Arg  
 225 230 235 240  
 Phe Glu Tyr Phe Asp Asp Glu Gln Ser Gly Gly Gln Ser Gly Thr Arg  
 245 250 255  
 Val Leu Ser His Val Ala Pro Pro Lys Ser Ser Asn Phe Phe Asn Glu  
 260 265 270  
 Phe Gly Met Asp Ser Ala Phe Pro Lys Lys Ser Ser Ser Ser Ser  
 275 280 285  
 Lys Ala Gln Val Glu Glu Thr Asp Glu Ala Arg Lys Lys Phe Ser Asn  
 290 295 300  
 Ala Lys Ser Ile Ser Ser Ala Gln Phe Phe Gly Asn Gln Asn Arg Asp  
 305 310 315 320  
 Ala Asp Leu Asp Ser Lys Ala Thr Leu Gln Lys Phe Ser Gly Ser Ala  
 325 330 335  
 Ala Ile Ser Ser Ser Asp Leu Phe Gly His Gly Pro Asp Asp Ser Asn  
 340 345 350  
 Ile Asp Ile Thr Ala Ser Asp Leu Ile Asn Arg Ile Ser Phe Gln Ala  
 355 360 365  
 Gln Gln Asp Met Ser Ser Ile Ala Asn Leu Ala Glu Glu Thr Lys Asn  
 370 375 380  
 Lys Leu Gly Thr Phe Ala Ser Ser Ile Phe Ser Asp Leu Gln Asp Arg  
 385 390 395 400

Met Leu

<210> 19  
<211> 3180  
<212> DNA  
<213> *Arabidopsis thaliana*

<400> 19  
ttacatatc gattcgttta acttgatttg gtgcttaccg ttagagaaaa cctccaccgg 60  
tccaagcagt gtctgatttc ccattgtgac ctacagattt cttatcgctt gcaggctgat 120  
aatagaaatc atcatcttta gcatcattat catcccaacc agcccaaccg ccgtcgtcat 180  
catcattaga agtcgacacc tttgggtgctg cttccttttt gctattgttc tcttctcccc 240  
agtcattcca agaattcgag ttacgataac tgttgttgtg accacttgat gatgattgtg 300  
atcctccaaa agatgaattt gctgttttgt ttccaatccc agagttctgg tagtaaccgt 360  
tgccctcagt tttattctgt tgattccaag ttgatgcttc ttcttttagtg aactcttcaa 420  
ccttttgtga ggcaattgcc atcactcctt tcatgatccc ccagtgcctc tgtcctatct 480  
ctgttgtctt actcgcaaca acattaacag tctcactgac cgtctgatct aagccacctt 540  
ctttgacctg cacaatgaac aaagggttct tatctcactt gtcttcaaaa ttctataatt 600  
tctaattgta gcagtatttg aaaagaagga cgagcatccg gcattatgct cagttcagcg 660  
tttttagagga tctccctaga gattttgcag gggcataaag aaaaaaaaaa aaaaaaagag 720  
ctttaacact gcaattaaag taagaagatt atgcagctag aaaagactct aattttgtgt 780  
tacataacaa tgtcaaaaat gggataatct aacaaacaga gcaatgagca tagcggcaat 840  
tagacagaca ccaagcgaat agtcacgatc tcaatataaa cttacaact agactacaga 900  
atgttaccaa ggagtgaact tactgatcac gatgcaaacg aatcaaccac aacatcgaag 960  
cagaaatgat aaaagaagta ccttggaagt aaactccatg gttccagtct gaacaacatt 1020  
tgcagctgat gcagcaacaa gagacaatct tccaaaaccc tataagcata tacgcgtaaa 1080  
acaaacacat tcatttacag gataaacaga gaagtcactc gcatgtcgca tctaaccaaa 1140  
tcaactctca aaagcttcca aatttacctc agacataaca gagaaaacat caccaccacc 1200  
actctgttga ttgcttctcg gagctggacc tggactagat ccaaacccaa catacttacc 1260  
accttgtgaa ggaggaagtc cctcaggctt agactcatte tcagccatcc ttttcgcaa 1320  
gaaactctcc ttattcgccg ccgacgcctc cagctgagac cgtgaatata tatcctcaga 1380  
cgatttcgac ttcgccggag caccacgacc tcccgatgac ctaaaatcac ccgccgattg 1440  
attcctcctc atatccgtag atctaaacga atcatcgtta tccaattat cccatccacc 1500  
attaccagaa tctctaccac cgcttgaga caacggaggc ttcttattca tcaatccacc 1560  
accaaccgat tccttaacaa tcggcggatc tctccattgt cttccctcag ctaaagcttg 1620  
gatccgatct cgatacacag acgcggcggtt ggaattgtac ttggagatga tatcagctc 1680  
tttcgagatc ccgtactgag cgagaaaatt gttgagacgc tcggtgcctc cagcgctcat 1740  
ttctctgata tggatctcgg accatgaatc catgggtgac gatctgacga atgagatgtg 1800  
aacacctaaa ccacggtgct taccggagca ttccaagcac atgaagattc catatgaaat 1860  
cgatgcccat tgtggattct tctgggagca atcgacacag acctgttct cgggtgaga 1920  
ttggagcgtc cgtaatcgtc tcgccgctgc cattatattg ccggtctcc gatctgacc 1980  
ctgactagat ctgatccagg ttccagattc tgatgcgttt tttttggctc aatcgttttg 2040  
cttaataaac gtggttaact gaataatttt gtgcgtgttt ttgtcacgtg agagcttcac 2100  
tcaatatttc caaggtctct gctaaaaacg tgtttgtctc aaaagcatgg gctttggctg 2160  
cttcgatata gggccgggtc tggaaggaac aacaaaaaaa actaaaacta ctctcgtttt 2220  
cttcttccgc tcaaccctaa cttgtggaag tcagtttaaa gtccaggtga gcattaagac 2280  
accaaatgtc cttgctgtga atatgaacgg gagaacaact gatgggggtc tgaagaagga 2340  
attaactgaa gtgatgaagc agggacagat tctgagtgtc aaggtttgtt tcttgttcat 2400  
tgattgttat gcattgcaat gttttaaacc ataagtcttt gatgatattc ttttattttt 2460  
cactaataag cagataaaaa aagatttggt ctggaattgt ccaacagggtg aacctaatgt 2520  
agagtcttat taacataact aaaggccaaa aagcggcaga acacttcag aagcatggac 2580  
ttgaggaatt gttcagcttc acattattcc ggtccacgtg tctggtacgg tagagtagcc 2640  
aaatcccagc aaagtccag ttaccagaat ttactctttc attctgaatt gttgtatctt 2700  
tttctttctt tctttttgaa ctcaaatcct tgttatctcc ctgttgacta tctttttaga 2760  
acaataatgc tcattagaag cttttcaact ctagtatat attattttcc aatgcacaaa 2820



ttataacatt	tgattcattc	attcaaacia	ttagaacatt	tcatacaaat	ccctaacaac	2880
agctgagaaa	tctcaactcc	cccaattaac	aaatctcaat	aggccatagc	cgtcacagtc	2940
tttctgtcac	agccatgtga	ttttgtgaac	atcacatata	gaccgttgga	tctgttgtca	3000
tccgtatcat	cacatcgga	ccgtttaatt	tttatgattg	tgaaacgacg	acgtaaagtt	3060
gttaaccggg	aaagacgaag	aaaaacgcgc	gggaaaattg	agagactgca	tcttaatcat	3120
cgtagggatt	ctctattttt	tggaatctga	ttcatatggt	tggggtttaa	tagtctcagc	3180

<210> 20

<211> 5640

<212> DNA

<213> Arabidopsis thaliana

<400> 20

cagtttctact	caccttgtga	tcataccac	cttccttcac	ctgcaataaa	atggtttctt	60
atctgatttt	gactccactt	ttccaaaact	ctattgccag	cagtattatg	gtaaacaaga	120
attctacaga	gagcatctaa	gaattgtgct	ttctacagag	ttaaagattc	tcactagacg	180
tgctcgttgag	gcatcaagca	acgcagtaac	tagatatctt	acaaactcta	tgcaaatcaa	240
gcagagagta	cagatagtta	gttaccttgg	atgtgaactc	cttggttcc	gtttgaacaa	300
cactagcagc	tgactgagct	gcagatgcag	caaccagaga	cagtcttcca	aaacccttag	360
caatttttaa	acacgaatca	acacacaaaa	cgtaattcac	cgaattcaaa	aaggaattgc	420
aaaacattca	ttcaattcac	ctgagaaaca	acggagaaaa	catcatcctg	ttgattatct	480
ctcgggtggtg	gagccgagct	tgatccgaat	cctacatact	tgccaccttg	cgaaggagga	540
agaccttcag	gcttagactc	attctccgcc	attctcctcg	cgaagaaact	ctctttccca	600
gcggcagaag	cctcaagctg	cgatcgctg	tagatatcct	ccgacgactt	tgacttcaca	660
tgtgcacctt	ctctatctcc	cgatgccctg	aaatcattcg	ctgactgatt	ccttctcata	720
tcagatttgt	aagaatcatc	gttatcccaa	ctatcccatc	ctccattggt	attgttattg	780
ttgtttccgt	aaccgccttg	agccaacgga	ggcttcttat	tcgcttccct	aacaactggc	840
ggatcattcc	atgggtctacc	ttcagctaaa	gcttggtacc	ggtcacgata	cacagaagca	900
gcgttcgaat	tgtacttgga	gataatatct	gtctccttag	cgattccgta	ttgcgcgaag	960
aatttgttga	gccgttcggt	accaccagct	tccattttct	taatctggat	cgcagaccat	1020
gaatccatgg	ttacggatct	gacgaaggat	atgtgaacgc	ctaagcctcg	gtgtttcccg	1080
gagcattcca	aacacatgaa	gattccgtac	gaaaccgacg	cccattgagg	attcttctga	1140
gcgcaatcga	cacatacctt	gttttcaggc	tgagattgga	gagttcgtaa	ttgtctcgtc	1200
gccgccatgt	ttcccggaag	tccgaacgat	gatcaatcca	acctgaatca	gatctaattc	1260
aaatctcgca	gacttgtgct	gtcagatttg	atgcgttttt	ttttcttttc	cgttttttct	1320
cttcttcccta	ataaatgttc	gggggttttt	ttggtacgtg	tctctggcac	gtgagaggtt	1380
tccggtagtt	tctcaaatgg	cccaaatgat	aattgtattt	actatttagt	ccaaatatga	1440
aatttatatgt	agacgatgcc	caagatgccc	aatcatgggt	atttatatgt	agacgatctt	1500
acaattcttta	ctcaagagct	atctatatat	tgtagataaa	ctacatcttc	aactaaccac	1560
tttaacctatg	cattaagccg	aagtttaagt	actagatcaa	tttatattat	gttatcatac	1620
atttgtgtct	ccgttaatac	ttagagaaga	ctcactaaca	attttgga	ccgtaatatc	1680
ctctacatga	gctttgttgt	gttgttgaac	cacaaggatt	gatggaatga	tgtggttgat	1740
cgaagaggcg	agcacgtctc	cgataggacc	taactcagga	tgttcagctt	gacgctcagc	1800
taatgcgcgc	acctcgcccg	acggtatcct	ccctcttcca	accactatta	gatcaaagtc	1860
tttactctgt	cctattgaca	gtatttcttc	aatgatgttg	tttggttcc	tttctttgta	1920
ctccaccatt	tctttccatt	tgctcttgaa	gtcttccaat	gccccttcgt	ctaattccta	1980
taattatttt	tccaagaaag	aaagctatag	ttatatattgt	cataactggg	atataaacat	2040
aggggatcaa	aagagattta	ccttttcttt	ttctggatcc	acgttggttg	ttaaaaaggc	2100
atagttcttc	tccttgccct	tagacggtgc	cggtcgtaaa	gtgacggcgg	tactcctcaa	2160
cgtttctctt	acaaaaaac	taataacggt	aactttaacg	gccggatgct	cagccattct	2220
cccgcgcgag	tctatagact	cacggtcatc	aggcccacca	aagaaaatca	cacaaacctc	2280
ttcaaccaca	ttcgacctat	ctaagctcaa	agtttgggcc	tcaatggacc	caagtccacg	2340
gtctacaaga	accgccaccg	aacacggcgc	attcttcaaa	acctttgggt	taaccaatcg	2400
ccaaccatga	ccaacgtttt	ccggtacggt	tccatctcct	cctccgtctt	gggtgggtgtg	2460
gctatgacca	tgatcagcgt	tccatcggtt	gtggaaaggt	aaaatgatca	ttgtgacctc	2520
cttgggtatct	gccatgtggc	aaatgtcttc	gtgcattgtg	ggtaatggag	agactgcggg	2580

gatgggcccgg	actgcgaccc	ggcctagttg	acgataggct	tcgaagcctc	ctatgacgtt	2640
gctgtgacgc	tcacccatgac	ggtaacggtg	aacgaaagga	agtccgtttt	tacgggctct	2700
ttgcaccatt	atgattgacg	aagaccgttc	cgttagttcc	atcagatgca	tcacaaacag	2760
cttttagccgt	agtatctgcc	aaaacaaaata	cgacttttta	aattattaac	caagattata	2820
aattattacc	cagctgattt	ttaattttta	ctatacaaaa	tgtgtgtaat	tatacgtagg	2880
atacattttc	attgagcatt	tcaatgatat	cttaattttc	tgatataact	cttatcatag	2940
atttacaaat	ttaaatatag	attattgtaa	cgtaaaaaata	taaaagaaag	gtaatttacc	3000
ttggtgggtc	ggatggactc	gacgagagag	atgagggagg	agacattggc	tggggccgtg	3060
aggcaggcta	ggatgcgaag	ctcttccttg	gtggagtctt	ggctcgccga	caagtctttt	3120
agtttgccgt	gggtgccacg	tgccggcttg	ttaaattggca	ttacagtagg	cgtcggttat	3180
aacgttgtga	agagtgccat	tagcactagt	attgcaaacg	tctcgtcgtt	tagtacctgg	3240
ttaaagtcaa	ccccgcgtac	aaacagttta	attaaaaata	accacactta	ctacattaat	3300
gggtaatcat	tatttcactt	tattgttgca	ttatgaagaa	gatcataaat	ctgcaagtgg	3360
atcagtaagt	gacgattacg	taaacattgg	cccattcgaa	aaggatatatt	cgtataaagt	3420
tttcatgcag	aaaaaaaaat	aaaaataaag	ttttcatgca	tgcatatata	tgactagtcc	3480
ttaattgata	agtttttctt	tattacccca	aaacaataag	aaacgccttt	ataataaaaag	3540
tgtagtatata	aactataatc	tttgttggga	agacacgttt	aaacaaaaaa	ttttatatac	3600
tacatatctc	cagaagcatt	atagtataat	cttgacacata	tattttaagat	aaaaatgttt	3660
atctcggagg	tgacaaaaga	atcacggact	aatgttttga	agctaccatt	gctaactgca	3720
tcattcttcga	tgacacatag	aaacttagct	atcaaattgc	aaccgtgtcc	atcagtcctat	3780
gattaatgaa	ctgcagattt	gtattatggt	gactaatatt	actatacaac	ggttgagagc	3840
aaacctagct	atcaaattgc	aaccgtgtct	attatagtga	tagtaaacct	agcagcccgg	3900
ctcaatatct	tattgggccc	tgtgctacaa	acaaaaatag	cccttaaatc	taaacaaaat	3960
aactttatgt	gacatgtgtt	tactgtatct	ttattttaaa	cttattatct	tttattttgg	4020
tggttggttt	ttttgtagtt	ttccccctaa	aaaaaaaaaa	actgcaaaact	agaagactta	4080
aaattaagaa	aaaaaaaaatga	ggaccctgtg	tactagcacc	tctggcactc	ccctagagcc	4140
gagcctgcct	agctatcaat	ttgaatttat	acaacgggtg	gttaatgttc	aaataaaaaca	4200
taagcaattt	tactattccg	gatccccgac	cagcctacca	atattgagcg	gaccggacgc	4260
atatacacat	ggatccaact	agaacctaaa	tttttaataa	tatctaaaca	ccctaaaata	4320
aaggatataga	tgcgattaaa	tcaatataat	aatcgtatct	tgttttatat	gctttatcca	4380
ctaaacatga	tcaaataact	ttagtgttac	taggtttttt	atatttataa	tattcatcag	4440
ataactaaaa	gcgtaaaaca	gaaccttaaa	aatcagaaa	aaaggaagac	aaaactaacc	4500
tttttctcct	tgccatgttt	gagtacaatg	agctccacta	aacctttagt	attcatcaag	4560
aaaccaagtg	tcaacgcctc	tctcgccgga	actttaacca	tcaccgccac	aacaaaagtt	4620
ccgactatct	tcccggcaca	agccgtaaca	acaacaagac	ccaacatccc	ccacgactca	4680
gctcctctaa	tcttagccac	gtcagtcttc	aaaccactcg	tagcgaaata	aagcggtaag	4740
agtaaacccg	aaacaaaatc	ctcaattcgt	tcaatcaatc	gctgaccaa	ctctccatct	4800
ttcgggtatag	tcaaaccgaa	aacaaacgct	ccaaaaatcg	aatgaatccc	aattaaatcc	4860
gtcgcgaaac	cggaaaccat	aacaccggct	aacgtcaaac	acacgtaaga	ctcgcgtacg	4920
acgtcgtttt	caggagatcc	acgttttcg	acccatttca	ttccgggtcg	gatcacaacc	4980
aacataaaaa	ccacaaaccc	agcgcccgat	acaacacac	caaccgctaa	taacggactc	5040
tttttctctc	ccctccctc	accgccatta	cccgtaacg	caaccgctaa	agcgagtaaa	5100
atccacgcgg	cacatccgtt	aaaagcggtc	gcagccatcg	cggttttctc	tatctgagtc	5160
gttaaaagct	tgagctctgc	taaaatacgc	gcaagtaccg	gaaaagctgt	gatcgagagt	5220
gcgactccca	tgaaaacgag	aaactcggcg	taacctgggt	tatccgcggc	ggtgtagaga	5280
gtgttacgga	tcacaaacgc	gactccgacg	ccggcgataa	acggtagtgt	aattccagcg	5340
actgcgattc	cgaagcgcg	tttgccgctt	cgtcggatcg	atgataaatc	gagttctaga	5400
ccgacgagga	agaggaagaa	gagaagtcc	atgctcgcga	cggattcgag	tatcggcata	5460
ctccatttct	gaaatatacg	gtccatgtac	gccatgtttc	tacctaaagc	cgatggctct	5520
aacaaaatcc	ctccctgaag	aagaagacga	tggcagaatt	gtaaattaag	aagattatta	5580
tggtaaaatt	gtaaatagtt	agtgtgtgtg	gggttagagt	gtaattttta	acgtacgaca	5640

<210> 21

<211> 4320

<212> DNA

<213> Arabidopsis thaliana

<400> 21

aagacaagat	cctttgtatg	tttcttacag	cattctatcc	tgaagatcac	tgaatatact	60
agaggcaaat	gttcccagct	tattctttgt	ttcctcagct	aagttagcaa	tagatgacat	120
atcttgctgc	gcctgtgccc	aataataaac	aaagtcaa	aaaaaacct	tataagcaga	180
gttaagaaaa	gctgaagaat	ttgattctac	ttcagaactt	tacctggaaa	gaaattcgg	240
tgatgagatc	gcttgcagtg	atatcgatgt	tggaatcatc	tggtccgtgg	ccaaaaagat	300
cagaacttga	aatagctgct	gaacctgat	agatttgtaa	tcgcattagg	catgtatgaa	360
caacgagact	aaagaaaact	agtatagagt	ttgatcgggt	aaggacatac	cgagaacttc	420
tgaagggtag	cttttagagtc	aagatcggca	tctctgttct	gatttccgaa	aaattgggca	480
gaggaaaatcg	atgtggcggt	tgaaaacttc	tttcttgctt	catctgtttc	ttcaacctaa	540
gtaaaaagaa	aacagggtaaa	caaagaggaa	tcgagaattg	atttctatct	ctttcttcag	600
ttctgttaaa	aatgaaactt	ttctttacct	gagctttgga	tgagcttgag	cttgacttct	660
tggggaaagc	actgtccatt	ccaaattcat	taaagaaatt	tgatgacttt	ggtggagcaa	720
catggctaag	caccctgtgtg	ccactttgcc	caccagattg	ctcatcatca	aagtactcaa	780
atcgagagggc	aaatgatgat	ccagctgctg	atgtgtcatt	ggttggagaa	gcagcaggaa	840
tcacaggtac	aggttcttca	ggcttctgct	catagagggt	atcctttgac	tacatatata	900
acaaatacta	atctaataca	aaccaagaac	cgagaagcta	agctataatt	ctttataaaa	960
acgaaaaacg	ttaccttagt	agtaagctta	cgagcaccaa	gaccaccagt	cttcccagac	1020
tttcgcgaaa	caagagggtt	cttaaagcta	ctagcaacaa	ctttctgaga	agcttttgg	1080
gaagagacaa	cagctgcttc	ttgcttcaaa	gaactctctt	tcggagattc	agaagtaaac	1140
ccatttttcag	atgattccac	tggctgagaa	gtagcaacag	aggataacga	cggtaaaaa	1200
gtttcttcag	ccatggcttt	agcaacttct	ttagcaagag	tctgtctata	catatcagca	1260
gctcttgaag	tatacttagc	ctcaatctta	ccaccatcat	tccatccatg	ttgcttaaaa	1320
aacacctgag	ctcgattggt	ccctccaaac	atcattgttc	ttagctgctc	aggactccac	1380
gagtcataagt	tcggtgacct	gcacaaaaac	aatatgatct	tataatagat	ctacaacaac	1440
atgaaatgct	ataaataagag	tggtaacag	gaaaaaataa	gtcaacatct	tcctaatac	1500
agcttaaac	ctagccagaa	ggtgaaacat	tgctacaagt	ccatgaagct	aaaaattaag	1560
cctaaagagt	tcaaatttgt	gttctcaag	attcaaagtt	ttacctgacg	aagctgatat	1620
gaacacctag	acttcgatga	acagcagaac	aatcgatgca	taggaagatc	ccataaggaa	1680
cagaagccca	tgttggattc	ttcgcactac	aatcaaagca	aacctaaaaa	ccgaagcaaa	1740
atcataaatc	aattcggaag	atcttaggtcg	tataagctcc	agatctgaac	gaaattcaaa	1800
atcgaaaatt	gagtaaccct	aaccttggtc	tcggattttg	atttcagctt	tctgaaaaca	1860
acattcttat	cggtgagatt	ctcagtcgcc	atcgttgaag	agtttagaga	tgtttcccca	1920
gaatctggaa	atctgaaagt	ggcgattatg	gatcgactct	tcttcttcaa	agcagaaatt	1980
tttgtttttg	ttttctgtt	atcttatttg	tttacgtttt	ttgattagag	gatcaatact	2040
aaactcgatg	ggcttgtatg	gcccataaat	gaataagccc	atatttgtat	ttcgtaattt	2100
cgtagatgtc	attattttta	tatgaaagtc	acacaattct	aaatcaaag	taaactctaa	2160
ccatagtcta	aatcctgtaa	aaaacttcta	attctttaat	cacaaaactt	aaccataaaa	2220
cagaaaatga	aaaaggataa	aacctcatcg	ctaaatttta	tcattgattt	ctccatcttg	2280
tatttagcgc	aaagaggata	gcttgaaaga	tgaagacaga	attgtgaaaa	attgaaaacc	2340
aaaataattg	ttaaattcaa	aaaatcgact	tgttatggaa	gtacattaag	gtattaaatt	2400
aggttatctt	cactaatctc	tctcgaacct	tttactttct	ttcttttttg	ataaaagtaa	2460
actttttact	tgataacaatg	tttctgtgac	atgtaacatg	tttatcaatg	tcttgtaaga	2520
aaactggcaa	gaagtagaga	tattttatta	tgtaatgtca	ataatcatat	gttagtgtac	2580
gatttagtggg	tctaaagtcg	ttttgtaatt	acatcatcca	cgagaatcac	gtgagctgga	2640
tcattttagc	catcgtgatt	aaccattgaa	tattattgta	catgttgtcc	ttttcactga	2700
ctacttttct	tcttctttct	ttttttttct	ggatattttg	tttataagta	atgggtggca	2760
ttatcatgtg	tagttctttg	tcaataatca	tgtgtaactt	tgacaaaaaa	atcatatgta	2820
acgtttttaa	aaattatata	ctttgggttg	tcattatagt	tttagccaaa	cgataaaaaa	2880
tttgatgaaa	aaaatgtgg	taaagaaaac	ttacagtata	ccgtgacaaa	aatatgaaga	2940
ttgttaataa	atagatatgt	caattatggt	gacagaaaca	tggaaagcag	acagacgatg	3000
cctagacaga	ggacccaaac	aattaaagt	ggctacacaa	cataattcca	atatttaaaa	3060
aaagaaaaaa	acaattttaa	atgtctaaga	aaaaataaat	tcgaatatga	attttataga	3120
gaaaatacaa	atttttatag	ttaatttctt	cctctttcaa	aaattgaacg	gaagttgcta	3180
tgttggtgga	tacattatta	tttgaatata	tattacaaat	aatttttagg	actagcaaat	3240
cattttttga	gttttctttt	tatgggtttt	gtagtcaact	ccacaaccga	taggttttaca	3300

tcgatgcttg	tacaatttta	cagtttgaca	gatggtactg	tactacgaca	tacggttcta	3360
tgcaccacac	taaaatctct	agatagaaat	cgtttccatt	aatcttcaat	aatttgtaat	3420
ctatgaaaat	caaacttcat	atatggtgtg	atgaagtatt	aatggatatt	tagttaacca	3480
ttacaccaaa	aaaaaattta	caccggataa	ttatttgaaa	acgtaaaattt	catattaacg	3540
gttcaaactg	atttttaata	aaatgaacat	aatgaaatga	tatttaaaaa	aaaaagatga	3600
ttggagaaag	aaaacacttt	tagttttttc	atatatatatt	attttcctat	aactaacata	3660
aaatcagttg	aaatattatt	ttaaattcct	aacttaattg	atataaattg	agtagaatct	3720
atttttttcc	ttttaaaaaat	gcaattcctt	tttgagttt	aaaatattaa	tttatatgaa	3780
aaataaaaatt	tatatatttag	atttctaact	tatgaaattt	tgaattatag	cattggtcca	3840
tattcgaaac	tctaagtcac	tatatcacca	taaatggatt	atttattagt	tttttctcca	3900
taaaacaata	agtggctatg	tgataataaa	cggatctaag	ttatgtttca	gacaaaacag	3960
tgtccaaacg	agaattatca	ctccatgaat	aatttattta	cgttttcgta	acagttaacc	4020
aaattattat	cgtttggttt	ttgtcatata	atatgtcgca	actctcaaca	aaaacttaag	4080
aaaataagaa	aaaattattt	acaattgttt	tagaaaaaca	ataaaaataa	aatatagtat	4140
tgtagagaga	atcatcttct	caaacaatc	actaaacgcc	atttgcttag	ctttttccct	4200
cttttgattt	ttcctcccta	cacgtcacct	ctctcttctt	ctcaccggaa	aaaagtcttc	4260
acctttcacc	ggaaaatatc	accttttcaa	ccggcgatg	ttcacatgaa	cggcacaaca	4320

S:\DOCS\SGJ\SEQLIST35A..TXT072503